

Traditional Agriculture and Rural Living in Croatia: Compatible with the new Common Agricultural Policy?

by

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ABSTRACT

KATARINA LAURA DOMINKOVIĆ: Traditional Agriculture and Rural Living in Croatia: Compatible with the new Common Agricultural Policy?

(Under the direction of Carole L. Crumley)

This research explores the issues of family farming and sustainable practices at two levels. On one level, it compares and contrasts the sustainable farming practices of farming families in Štitar, Croatia with the smallholders as described by the theory of cultural ecology. On another level, it contrasts the European Union's (EU) Common Agricultural Policy's (CAP) vision of sustainability to that posited by cultural ecologists and it seeks to understand the reaction of Štitar farmers to the CAP.

My research goal is to explore how the social, economic and environmental health and status of the village, which is influenced by local traditional ethics and agricultural practices, fits with the CAP goals of rural preservation and agricultural sustainability. My research questions explore how Croatian local farmers have adapted to the farming regulations of the past political regimes, in an attempt to provide an understanding of how current local agricultural practices fit the EU's visions of sustainable agricultural systems that are competitive, environmentally sound, and socially just. Hypotheses are framed to illuminate ways in which these rural dwellers and family farming households are adapting to the international policies that are pushing them toward the global market and away from their goals of subsistence and independent social viability.

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PREFACE

This work is based on observations, personal conversations, and the oral histories as told to me by the residents of Štitar. For the purpose of maintaining the confidentiality of my informants, their names have been changed. Many of the opinions and concepts I write about are commonly shared by most of the residents.

Throughout the chapters that provide a historical overview I supply maps to make it easier for readers to follow the multiple changes in geographical borders and to better understand where national entities that no longer exist were once located. The tables and figures I use in the chapters to support my claims are either generated from my own datasets, or are incorporated from other cited sources. Apart from the data I collected, I used three different sources for the statistical data, all of which are located on-line at <http://www.dzs.hr/>. During my fieldwork, I also collected this same data on compact discs. Specifically, I have a copy of the Population Census 2001 from the Statistics Office in Županja; the Agricultural Census 2003 from the Ministry of Agriculture, Forestry, and Water Management; and the Statistical Yearbook 2004 from the Croatian Bureau of Statistics in Zagreb. Since the first two CD copies were not final versions, I used the on-line versions during the writing of this dissertation.

In order to avoid repeating the long names of these three data sets I developed a key. I reference the data source called *Statistički ljetopis Republike Hrvatske za 2004* (The Statistical Yearbook of the Republic of Croatia for 2004), published by the *Republika*

Hrvatska–Državni Zavod za Statistiku (Republic of Croatia–Central Bureau of Statistics) as RH-DZS-SLJ 2004. I reference another publication by the same office, called *Popis stanovništva 2001* (Population Census 2001), as RH-DZS-PS 2001. Finally, *Popis poljoprivrede 2003* (Agricultural Census 2003) I reference as RH-DZS-PP 2003.

In addition, I often use the Croatian names of places or terms for people or practices, which I italicize every time and describe their meaning the first time I mention them. I also provide a glossary of these terms in Appendix F, in which I translate them and include a short description when necessary. In this text, I change these words by number and gender as it fits the context of a sentence. Instead of changing the words by declination according to the Croatian language, I add an 's to the infinitive form of the word when using it in possessive form.

Finally, I reference archival documents in this text by the author if known. I also reference them in the bibliography according to the source, year, and box number. The Vinkovci archive did not have their documentation arranged by this system, instead the archivist handed me the materials directly from the shelves. For these documents, I only cite a date and title. The keys, which I use in text to refer to the archive documents, are as follows: *Arhivski Sabirni Centar Vinkovci* (Archive in Vinkovci) is referenced as ASCV; and the *Državni Arhiv Osijek* (National Archive in Osijek) is referenced as DAO.

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1

A Croatian village in a global setting

Introduction

In the increasingly global market economy where all vendors desire equal access to the market, small-scale family farms all over the world are facing new challenges. The same high healthy food standards and environmental protection requirements apply to family farms as to the large-scale, monocropping farms. Many international farming policies, and more specifically the Common Agricultural Policy (CAP) of the European Union (EU), do not recognize that some, but not all, family farms may already be protecting their land as heritage for future generations to enjoy. Cultural ecology describes these stewards of land as “smallholders”¹ who rely on their own family labor, produce subsistence, and partially engage in the market (Netting 1993).

Not all family farmers fit the model of the smallholder households who apply agricultural practices that are more sustainable and often more intensive than the practices of the large-scale farmers. Robert Netting studied and described numerous cross-cultural examples of the sustainable and intensive smallholders who "achieve high production, combine subsistence and market benefits, transform energy efficiently, and

¹Netting defines smallholders as “rural cultivators practicing intensive, permanent, diversified agriculture on relatively small farms in areas of dense population” (1993:2). I believe farming families and smallholders are not synonymous, as not all small-scale family farmers should be considered smallholders. Later in this chapter I describe why Štitar farm families are indeed smallholders.

encourage practices of stewardship and conservation of resources" (1993:320). Differently from Netting, policy makers and the general public often think of the smallholders as backward, unproductive, inefficient, and resistant to change and modernization (Netting 1993, Barlett 1993, Escobar 1995). The core purpose of this dissertation is to dismantle this stereotype about the smallholders. I attempt to achieve this goal by comparing the farming practices and household economic decisions of family farms in the village of Štitar, located in the eastern Croatian region of Slavonia, to the smallholders' sustainable practices as described by Netting. I also explore how the Štitar family farmers compare to the EU's ideal model of a sustainable farmer who is competitive, diversified, and a steward of his or her environment.

Research questions and arguments

This dissertation explores issues of family farming and their sustainable practices at two levels. On one, it compares and contrasts the sustainable farming practices of Štitar families with the smallholders Netting describes. On the other level, it contrasts the EU CAP's vision of sustainability to that posited by cultural ecologists, and it seeks to understand the reaction of Štitar farmers to the CAP. My research goal is to explore how the social, economic, and environmental health and status of the village, which are influenced by local traditional ethics and agricultural practices, fit the CAP goals of rural preservation and agricultural sustainability.

In order to reach my goals, I defined the following research questions:

- 1) How did Štitar farmers respond in the past to the external changes brought by political regimes and the market economies?
- 2) What role did traditional rules of inheritance, household hierarchy, and labor division play in securing the viability of Štitar family farmers?
- 3) What are possible reasons for what appears to be a rejection of innovations among the Štitar farmers?
- 4) Is there a correlation between the amount of household income and the degree of market involvement among the four household types?
- 5) How labor intensive are the practices that Štitar farmers employ in growing crops and raising animals?
- 6) Are some Štitar family farms too small to provide time employment for their members?
- 7) How do the European Union's visions of sustainable agriculture differ from those described by the theory of cultural ecology and how do the family farms in Štitar currently compare to these visions?
- 8) Is it possible to predict how Croatia, and specifically Štitar, will adapt to the CAP by studying the villagers' behaviors during previous regimes and their respective policies?
- 9) What will be possible impacts of the CAP on Štitar family farmers?
- 10) How does the CAP envision the role of women in agricultural production?

In order to collect the ethnographic accounts and empirical data necessary to answer these questions, I conducted field research from September 2003 until March 2005. My arguments and hypotheses rest on the theoretical concepts of cultural ecology as

presented by Netting (1993, 1981, and 1968), Barlett (1993, 1980, and 1976), Layton (2004), and others. I contrast their examples of sustainable smallholder farming practices to those of Štitar smallholders and to the sustainability as presented by the Croatian and European agricultural and rural policies.

In an attempt to explore my first research question and to illustrate the long-term viability of rural life and farming in Štitar, in chapter two I describe the environmental systems of the Balkan Peninsula and then of the Slavonian region and the village of Štitar in particular, from the Neolithic Age until the early 19th century. I continue in chapter three by reconstructing historical and political ecology of Štitar and its surrounding area. Specifically, chapter three describes the village as it developed through the Byzantine Empire, the Ottoman Empire, and the Habsburg Monarchy. By studying the impacts of various regimes on the village and its people, I seek to explore how the villagers' behaviors and habits changed and adjusted to different circumstances.

In the account of the Štitar historical ecology I am most interested in exploring and understanding what led to the dissolution of family farming cooperatives or *zadruga*. Was the disappearance of *zadruga* influenced only by the external factors such as emergence of the monetary economy? Or, was it also influenced by specific circumstances in the household life cycle? By studying families' cycles of change, I am interested in understanding behaviors and decisions made at the household level, which helped the households to adapt to the external political and economic changes.

Netting describes the smallholders' remarkable resilience over the long term, as well as their ability to adapt to environmental, social, and political changes.

Even where there has been a rapid increase of agricultural commodity production for national and international markets, the economy of small household producers has survived with a remarkable degree of control over family labor and land (Netting 1993:216).

In my studies, I was fortunate to have found genealogies of many current Štitar farming families, some of them leading back to the end of the 17th century. I found that these families continue to produce a livelihood by cultivating their land and relying on family labor. Contrary to the national agricultural policies and the CAP's characterization of some Štitar smallholder households as unproductive, non-market-oriented, and not viable, I provide evidence for their long-term viability and sustainability. They survive and continue existence by virtue of relying on their own knowledge and means of production, by being partially market-oriented in addition to subsistence focused, and by turning unproductive agricultural labor to more productive means.

In order to explore families' cycles of change, I open chapters three, five, and eight by presenting a history of one of the largest family cooperatives in the village, which was divided into smaller families at three different points in its history. Chapter 4 also opens with a history, but of another family who had a unique experience with the local communists who attempted to establish some form of a collective property ownership.

In chapter four, I continue to demonstrate the adaptive mechanisms of Štitar family farmers that aided in their survival through various regimes, in particular communism. I focus at the period between the two World Wars, and specifically, the land reforms that took place after the WWII. I describe the formation of national collectives as well as the introduction of contract farming, both of which introduced mechanization to family farms and external inputs such as fertilizers and pesticides. I claim that the adoption of mechanization and the continual improvement of practices to meet the changing political

and economic environments allowed Štitar farms to survive and to continue to be an appealing livelihood for successive farming generations.

In chapter five, I describe traditional farming practices and customs that allowed Štitar family farmers to continue the livelihood of the sustainable smallholders as stated in my second research question. For instance, I demonstrate their well-defined household hierarchy and a very specific and strong work ethic that stems from it, which Netting points out aid the smallholders' resilience (1993:62). During my fieldwork, I observed smallholder households in which younger members paid respect to an older paternal individual who was the household head and often the farm manager. I suggest that such well-defined household hierarchies combined with the managerial skills of the household heads are attributes that contributed to the long-term resilience of these farmers.

Contrary to the current national and EU policies that view elderly farmers as limiting modernization and as being resistant to change, in chapter six I claim that what appears to be a rejection of innovations is rather due to different economic goals between diversified family farm households and the policy. These issues I explore in relation to my research question three. I hypothesize that the CAP does not recognize family farmers' goals of market independence and flexibility, but pushes them to fully integrate in the global market. In addition to a difference in goals, I emphasize that the transitional state of Croatia's agriculture as well as the lack of well-defined goals from the Ministry cannot be ignored when seeking to understand the reasons for farmers' hesitation to accept modern knowledge.

Not only is the oldest man an important authority figure, but the role of his spouse as the eldest woman and household matron is also crucial. This I also describe in chapter

six. I hypothesize that farming women contribute nearly equal amount of labor hours as men to producing the household' own consumption and surpluses for sale. I found Štitar farming women practically running the home portion of the farm while men were in the fields or at work. Since women are not owners of land or any machinery, their work and efforts are often hidden behind the farming endeavors of their husbands, which is why their crucial role is so often neglected in agricultural policies. I demonstrate important roles of women as sustenance producers, income contributors, and family builders, as well as their irreplaceable role in raising the next generation who will inherit and continue the farm.

In chapter six I also explore diversification of Štitar farmers, which is another common practice Netting found among the smallholders. Do Štitar family farmers diversify in the same way as Netting's intensive smallholders? I demonstrate that they have always been diversifying with both plant production and animal husbandry. In addition to pooling income from agriculture, they have always engaged in non-agricultural activities such as crafts or off-farm employment. The current policy, however, does not recognize this role of diversification.

Lastly, in chapter six, I provide ethnographic and empirical evidence which shows that in some cases household incomes are significantly different among the household types. I demonstrate that the income of the high market households is significantly different from the average of no, low, and medium market households, as well as the income of medium market households from the average of the no and low market households. I also demonstrate that although high market households cultivate more land and produce more surpluses, they are troubled by the same challenges imposed by global

market competition as those households who produce fewer surpluses. The challenges include rising prices of inputs and falling prices of farmers' products.

The exploration of Štitar smallholders continues in chapter seven with an illustration of what makes them intensive cultivators. Here, I explore issues related to my research question five. Do Štitar farmers live in areas of dense population? Do they leave their fields to rest? Are parts of their agricultural production more labor-intensive than others? Netting found that smallholders begin intensifying as a way of decreasing fallow periods when the population density reaches 100 or more people per square kilometer (1993:266). I studied less intensive and diversified smallholders who employed sustainable agricultural practices in an area of a population density less than 100 people per square kilometer. Despite the lack of population density pressures, I suggest that Štitar smallholders invest more labor hours and achieve higher output per unit of land than large-scale and extensive farmers. I demonstrate that they substitute labor for mechanized operations, which decreases their costs of production. I also describe dairy farming as the most labor intensive part of agricultural production.

In addition, chapter seven provides empirical evidence to support my hypothesis that adult farmers in fact work 8-hour days all year round, which they achieve through diversification. With this evidence I attempt to dismantle the stereotype that some farms are too small to provide a full-time employment for their members, as explored in my research question six. Even the farmers who diversify their income by cultivating a few hectares of land and working off-farm work as many hours or more as a typical working individual.

Chapter eight shifts away from comparing Štitar farmers with Netting's smallholders and toward describing national and international agricultural practices. Sustainability, intensification, viability, and diversification all are terms also found in the CAP. What these concepts mean for the CAP administrators is the subject of my research question seven. I present how the CAP's idea of diversification is similar to Netting's in as much as it means developing other income-making activities on the farm, such as offering a non-agricultural service or taking outside employment. The difference is in that the CAP extends it to rural areas in general, directing rural residents to create non-agricultural job opportunities. I point out that by encouraging diversification in rural areas the CAP does not seem to recognize the ways in which it already exists. I suggest that diversified family farmers in Štitar are in fact close to the CAP's idea of socially sustainable farmers.

Furthermore, chapter eight explores answers to my eighth research question. Reflecting on their past behaviors and patterns of change, I project that some Štitar farmers will adjust their behaviors and traditional agricultural practices and will therefore meet the current policy goals while still being considered sustainable by Netting's terms. I also address what possible consequences increased market involvement may bring to the Štitar family farmers as addressed in my research question nine. Lastly, identifying the place of women in the CAP as suggested in my research question ten brings me to the end of my research. Chapter nine offers a summary of the answers to my research questions as well as some implications for future.

Theoretical background

Various scholars (Netting 1981 and 1993, Barlett 1993, Layton 2000) criticize the traditional stereotypes that small-scale farmers are unproductive, use too much labor, do not produce large surpluses for the market, and do not make rational economic and scientific decisions about production and innovation. Netting (1981, 1993) for instance, claims that a repertoire of local skills can outweigh the benefits of larger scale farms; that human labor as renewable energy competes well with mechanical energy; and that household management and family workers are superior to hired labor. His cross-cultural studies from Switzerland, Nigeria, and China provide numerous examples of sustainable and intensive smallholders whose practices often conserve and enhance soil fertility and biodiversity, while providing a decent livelihood.

Netting defines sustainability in a way that differs from those proposed by many international policies, large-scale farmers, and other proprietors in the food marketing chain, as well as some family farmers whose interests in food production are not necessarily sustenance and well being, but rather profit. He partially describes sustainability in "energy terms over time" (1993:136). The attributes for sustainable systems include "relatively stable production per unit of land", "predictable and relatively stable inputs of energy", "economically favorable rates of return between inputs and outputs in energy and monetary terms", and "returns to labor and other energy inputs sufficient to provide an acceptable livelihood to the producers" (Netting 1993:136). In addition to sustainability defined in energy terms Netting points out other attributes of the smallholders' sustainability.

Sustainability refers not only to the stability and favorable ratios of energy inputs and outputs but also to the source and costs of inputs and the range of economic needs met by outputs. To the extent that inputs are produced on the farm and by means available to the household, the farm family is less dependent on outside forces and less vulnerable to rapid changes in the market or failures in external economic and political systems (Netting 1993:139).

In similar ways, the Štitar farming families I studied keep their yields stable; maintain production volume that does not rapidly increase labor demand; diversify production and income sources; and produce both subsistence and surplus, which then allows them to accumulate wealth and invest in land and assets. Therefore, Štitar family farmers participate in the household economy (also called a "house model"), which is based on livelihood, as well as in the market economy (also called "corporation model"), which is based on acquisition (Escobar 1995:97). Escobar points out that farmers are "being increasingly pushed into the market; they interpret this fact as a diminishing margin for maneuvering. The house model persists at the margins, where the model of the corporations (which epitomizes the market economy) has not become dominant" (1995:97). Similarly, I found Štitar farmers to have continued to produce their subsistence base, despite being increasingly pushed into the market economy.

My research allowed me to record Štitar farmers' remarkable resistance through changing political regimes and economic and climatological hardships. They have been able to survive and continue to be viable by virtue of employing agricultural and economic decisions along with traditional practices that have changed and adapted to the current times. By these characteristics, Štitar family farming households are sustainable in Netting's terms, but not necessarily in terms of the CAP.

For the EU, sustainable agriculture is that which ensures that future generations enjoy the benefits of Europe's unique environmental heritage and natural resources. For agriculture to be sustainable, it has to meet the economic challenge of strengthening the viability and competitiveness of the agricultural sector. It also has to meet the ecological challenge of promoting good farming practices and providing benefits linked to the maintenance of habitats, biodiversity, and landscapes. Lastly, it has to meet a social challenge by improving the living conditions and economic opportunities in rural areas.

How do the policy makers envision farmers to achieve these policy goals? First, achieving economic sustainability in the CAP terms often involves a need to re-structure the farm. The CAP offers several funding programs to farmers who are interested in becoming competitive and thus—in CAP's terms—viable. Second, meeting environmental aspect of the CAP's sustainability model is possible by employing good farming practices that preserve the environment and countryside. Third, social aspects of sustainability can be achieved by diversifying income sources from either farming or off-farming activities, which all together would make farms more viable. The CAP offers programs that are aimed at adding value to the rural economy by awarding a farmer for environmental services that are linked to diversification into tourism, crafts, and training. Diversification, however, is not only farmer-related but it includes rural community as a whole. With such directions for achieving sustainability, it is clear that viability of sustainable agriculture in the CAP's terms is linked to market-involvement, environmental stewardship, and preservation of the rural communities.

However, such policies that are geared toward increasing ties between small farmers and the market by encouraging increased capital investments, in fact, may bring negative

consequences for the family farmers (Barlett 1980, Escobar 1995). Some farmers may successfully transform into an agricultural entrepreneur and compete in the market. However, other farmers may not succeed in becoming competitive and they may be displaced from the market and perhaps production all together. In other words, the policy that strengthens the link between small-scale farmers and the market results in farmers who either produce or perish (Escobar 1995:7). I believe that such policies do not necessarily sustain farming lifestyle or rural landscape. Unfortunately, the CAP, despite its reform in 2003, did not completely move away from such a mindset. On one hand, it created opportunities for farmers to be awarded for keeping their land in good environmental condition without producing anything. On the other hand, it continued to encourage and provide financial support for land expansion and market dependence for farmers who desire an entry into the market. The following sections explore in more depth what the CAP expects form farmers.

Newly reformed CAP

In response to the criticism that it is disproportionately subsidizing the largest farms, the reformed and "greener" CAP moved away from paying production volume subsidies and toward making direct payments to farmers who employ sustainable agricultural practices in producing healthy foods in environmentally sound ways. Furthermore, while on one hand, the CAP encourages farmers toward being more competitive and fully market-oriented, on the other, it makes it difficult for farmers to maintain the same degrees of self-sufficiency, self-management, and a certain amount of market independence. Agricultural production is being increasingly reinterpreted as a

component of a complex global economy whose inputs and outputs have wide effects on non-farmers. In the modern perception of the European farming life, agriculture is seen as a vital component of rural economic development. The CAP makes clear that the farmers are not just food producers, but also the “gardeners of a rural landscape” (Van Deventer 2000:15) whose role it is to "enhance the overall national quality of life by providing food, preserving rural landscape, and sustaining healthy natural environments" (Barlett 1993:252).

However, I suggest that imposing these multiple roles on European farmers makes them feel under pressure to change their production goals and their traditional agricultural practices, moving away from those they have been employing for hundreds of years as adaptive strategies to their environments. I claim that the family farmers' available and effective methods for managing their landscapes while performing sustainable agriculture may be different from how the policy administrators envision sustainable farming. While the CAP's main concern is creating competitive and more ecologically sound agriculture, I believe the Štitar family farmers' main concerns are household subsistence and social viability. The importance of these long-term goals is exemplified in how they adapted and remained viable through many transformational periods. It will be interesting to see how the Croatian farm family households adapt in the current transition period put in place by the Croatian government and the Ministry of Agriculture, Forestry and Water Management (hereafter referred to as the Ministry), and how they will continue to be viable at the brink of their EU membership and in the face of an expanding global market economy.

How intensive are Štitar farmers?

Earlier I described some of the characteristics that make Štitar family farming households resemble Netting's sustainable farmers. Now it is time to explain in more detail why they are smallholders and how intensive are their farming practices. Describing the smallholders' intensive practices, Netting diverges from deriving a definition of extensive and intensive production based on the use of different tools or technological advances. Instead, he defines intensification as “a process of increasing the utilization or productivity of land currently under production, contrasting with expansion, that is, the extension of land under cultivation” (Netting 1993:262). In other words, "intensive" is characterized by high human labor input and high output per unit area of land. For instance, practices like intercropping, rotation, diversification, terracing, irrigation, and manuring can all be carried out with different physical means and various cultivars. Intensification in the land use by means of using smaller areas for longer time periods requires a cost which is often human energy in the form of labor. A significant input of energy is needed for resources to give larger agricultural returns more constantly. Intensification means increasing the amount of human labor applied per unit of land in the total farming operation. Netting gives a numerical range of 1,000–4,000 hours/year/adult, for a farm size of between 2 and 5 hectares (1993:108–130).

Exploring annual work hours of the Štitar farmers, I demonstrate that they fit Netting's description of the intensive farmers. Other attributes that make certain farmers intensive producers speak less clearly of the intensification of the Štitar farmers. For instance, they live in an area of the population density below 100 people per square kilometer, which is well below density of the farming populations Netting described.

However, Netting mentioned but did not describe in more detail, "less intensive, but still diversified, permanent, smallholder cultivators in Hungary" (1993:87). Thus, since the population pressure that pushes farmers to intensify is absent, I characterize Štitar farmers as partially intensive cultivators.² Methods for measuring intensification are still widely discussed by researchers (Boserup 1965, Netting 1993, Turner and Doolittle 1978). In my study, I used population pressure, annual labor hours, and levels of technology as main measures of intensification of Štitar farmers. So defined, intensification is contrary to the idea of expanding the amount of land under cultivation in order to increase production volumes, which is the core of the EU, and thus the Croatian, agricultural policies.

As to whether Štitar family farmers are smallholders or not, I describe the small-scale cultivators who employ many of the smallholders' practices described by Netting. Although they do not cultivate as intensively as some of Netting's smallholders, nevertheless they cannot be considered extensive cultivators, because they often replace mechanical with human labor, produce subsistence as well as some surpluses for sale, diversify their production and income sources, and employ intensive practices such as omitting fallow. In addition, my research also found that Štitar family farmers share other resemblances with Netting's smallholders who

consume and exchange the products of the farm, have continuing rights to the property, live together on or near their fields, and are almost always the family of a married couple and their children, along with other kin and possibly permanent employees (1993:58).

²Speaking in favor of intensification, Netting claims that comparing energy inputs and outputs for modern and traditional practices provided revolutionary and unexpected evidence that energy inputs expanded and returns of edible material declined under modern methods, to the point where they were strongly negative. Unfortunately, I was unable to measure energy expenditure of agricultural inputs and outputs among the Štitar farmers, but instead I offered an input/output analyses based on the monetary value in chapter seven.

Similarly, Štitar family farmers consume and sell what is produced on the farm; they own some land and rent some; they live as a family of an elderly couple and their one married son and any unmarried children. Moreover, they have some combination of production, distribution, transmission, biological and social reproduction, and co-residence. They meet their needs for subsistence and consumer goods by relying mostly on their own local knowledge in producing grains, fodder, and sugar beets as a cash crop, in combination with animal husbandry. They are open to accepting certain technical and industrial innovations such as tractors, milking machines, and pesticides, and they incorporate scientific knowledge to a certain extent. They often shift their labor resources, and during slack agricultural times take on alternate income producing activities such as crafts or off-farm employment. Some household members hold full-time employment and do agriculture on the side. I found all these, and many more, practices among the Štitar farming families similar to what Netting describes among the intensive smallholders he studied. By the virtue of such similarities existing, I claim that Štitar family farmers are in fact smallholders. The next question that emerges is: are all these smallholders also farmers in terms of the CAP and the Croatian agricultural policy? As I show in the next section, the answer to this question is "No".

National agricultural policy

The Croatian Ministry calls small-scale farmers, such as those in Štitar, *obiteljska poljoprivredna gospodarstva* or farm family households. Since these farmers hold 80 percent of the national agricultural resources (land, animals, and feed), the Ministry characterizes them as a pivot point of the national agricultural politics (MPŠiVG 2002:6-

9). However, in the Ministry's terms, not all these farm family households are considered to be farmers. Only those farmers who produce certain minimums and whose production volume is at least 3 production units³ are considered to be market-oriented and thus viable. Farm family households who produce less than 3 production units are considered non-market-oriented and non-viable in policy terms.

With its agricultural programs, the Ministry primarily supports the production of the market-oriented households, while the non-market households can apply for one of the Rural Development programs if they meet certain criteria. One such program is geared toward non-market-oriented households that are owned by farmers who are older than 55 for men and 50 for women. These elderly households are encouraged to move out of farming and lease or sell their land to "the more serious farmers." Other farmers who are on the verge of being market-oriented the Ministry encourages to expand their production volume in one of two ways: increasing production of existing crops by land expansion, or growing new crop varieties that are more profitable in smaller areas. The goal of such Ministry's programs is to increase competitiveness of Croatian agriculture.

However, I claim that such developments encouraged by the Croatian agricultural policy and CAP push the farmers toward what cultural ecology theory describes as unsustainable development in terms of energy use (Netting 1993 and 1981, Cleveland 1998). Describing sustainable agricultural systems, Netting explains why large-scale and extensive farms are not sustainable. For such systems that use large amounts of fossil fuels and manufactured inputs, Netting provides empirical evidence that speaks to their

³Production units or PU are coefficients calculated based on the value and costs of each production type. It is a value of a production minus its variable costs. Minimum production volume which enters the calculation is 0.4 PU. Every farm family household has to meet the minimum of 3 PU to be eligible for any subsidy type (MPŠiVG 2002:11).

negative energy balances. According to cultural ecologists, increasing production volume by land expansion requires larger external inputs which substitute for natural control processes and resources, thus leading toward unsustainable development. Directions in which the CAP pushes farmers seem to, in some cases, lead toward such development.

Aspects of farming ignored in the CAP

So far, I have said little about how emphasis on capital accumulation and market involvement affects women in farming.⁴ Promotion of cash crops, mechanized farming, use of chemical inputs instead of food crops, and labor-intensive solutions pushed women out of farming. "Only men were considered to be engaged in productive activities, and consequently, programs intended to improve agricultural production and productivity were geared toward men" (Escobar 1995:172). Women have been considered to be engaged in the home economics, such as garden production of supplemental food for the family diet, rather than in the market economy.

Similarly, the CAP has ignored women; and every reform continues to leave women as invisible farmers. The CAP does not have farming programs specifically aimed toward women. The only time women are mentioned is in relation to a need to create employment opportunities for rural women whose help is assumed not to be needed on the farms of their husbands. Specifically, some rural preservation programs are aimed at

⁴Escobar (1995) describes the beginning of the process of making women invisible farmers dating back to the end of the 19th century imperialism, and it especially increased in the post WWII period when agricultural modernization and industrialization of the poor Third World Countries began.

establishing childcare services in rural areas which would bring employment opportunities to rural women and allow them to seek off-farm employment. Most programs that concern rural women are a part of the EU's social policy, but not its agricultural policy. These programs include issues related to women's health, family planning, and child support. I argue that the policy that presents women as unneeded on the farm and encourages them to seek off-farm employment jeopardizes the historically crucial role of the Štitar farming women. These women have been contributing to the continuation of the farming family line by raising respectful and dedicated generation of future farm managers who carry embedded love for land and a sense of responsibility to their farming predecessors. Once these women leave the farm for the full-time employment in nearby cities, the role of raising children is to fall on day care centers which do not teach about the value of land and family.

In addition to programs that discourage women from staying on the farm, CAP does not recognize the location-specific needs of the European rural communities. By stating this I do not mean that the CAP has not tried to decentralize its power and give more authority to the EU member countries. Certainly, the last CAP reform has shifted emphasis to the member countries and allowed each country to choose from the CAP's wide array of programs, with the idea that each country would make choices that best suit its circumstances. However, what the CAP has not done is to remove its controlling eye from the farmers. Quite contrary, it established more ways to control farmers' decisions, actions, and practices, which is made possible by the modern satellite technology. The need for the increased control is created by the fact that farmers are awarded subsidies under very rigidly defined terms. In order to keep the CAP budget under control, policy

administrators have to implement constant surveillance of the farmers' conformity to the subsidy terms and conditions.

Moreover, CAP has not encouraged national studies of the effects of its policies on the local communities. Member countries create their national policies accordingly to the CAP guidelines, and these policies are created by economists, agronomists, and other specialists who sit in comfortable chairs in urban offices and think that they know all about the needs of their farmers. I suggest that local farming practices and farmers' behaviors in response to the policy implementation could be quite telling of the success of the policy and could be helpful in creating programs that better meet the needs of the farmers.

Theoretical contributions

Tying the theories of cultural ecology with little explored farming systems in Eastern Europe and the international agricultural policy, this dissertation provides several theoretical/conceptual contributions to anthropology. First, while exploring sustainability based on concepts of various proprietors (e.g. cultural ecologists, Štitar family farmers, and EU and Croatian policy makers), it attempts to highlight divergences, and perhaps reconcile the notion of sustainable agriculture. Secondly, by focusing both on the local conditions of a little understood agricultural system and on the institutional regulations at the national and international levels, this dissertation contributes to the efforts of designing international policies that recognize the importance of local knowledge and practices in preserving a diversified European landscape.

Moreover, by studying a local village that is on the brink of becoming involved in not only the common European market, but also the global market system, this dissertation should challenge stereotypes about inefficiency, low productivity, and the market isolation of traditional farmers. With its time allocation studies and household diaries, it also contributes to the insufficiently explored notion of labor productivity, and especially that of the Eastern European farming societies. Existing literature on labor productivity often provides poor descriptions of methods of analyses, which motivated me to supply this dissertation with detailed descriptions of data analysis methodologies. In addition, some authors (Netting, Stone and Stone 1985) emphasize that time allocation study has the potential to provide knowledge about the hidden work of women in the household production. In its effort to measure female labor in direct production and domestic work, this dissertation attempts to remove biases against "unpaid" domestic activities.

Lastly, this study is important not only to anthropology, but also to the people it studies because it explores local traditional ethics and land management practices that actually are closer to the EU's notion of sustainability than extensive farming systems. This study is important for the agricultural village community that will most likely undergo a number of transformations in order for Croatia to be admitted to the EU. It is important for the national administrators who seek to create agricultural programs and regulations in accordance with the CAP. Lastly, it is important for the EU policy makers who strive to preserve a diversified European rural landscape characterized by family agriculture, while at the same time producing enough food to feed the world's population.

Why a study of Štitar?

I chose the village of Štitar as the site of my fieldwork because it represents one of the Croatian agricultural regions where farming is mixed between traditional crops of small grains and maize and animal husbandry. Also, the Štitar environment is typical of a Slavonian rural landscape, dominated by small and scattered fields. Grain fields are mixed with orchards and often bordered with small or larger tracts of forest or hedgerows. I also chose Štitar because of its continuous agricultural practices that are performed by family farming households who adhere to traditional modes of rural living and farming, but who also accept innovations and new knowledge. I surveyed and observed typical nuclear (a couple and their young children) as well as stem family households (families of a married couple and one married child who will eventually inherit the farm) (Jones 2006:61). I chose the household as a survey unit because it mobilizes a great deal of agricultural labor and provides "the most functional, easily recognizable, and frequently surveyed unit cross-culturally" (Netting, Stone, and Stone 1995:57, Bičanić 1981, Thomas 1973).

Štitar is not an unfamiliar place to me. It is the village where my father's ancestors settled centuries ago and where I spent all of my childhood summers. During these frequent visits (from 1973 to 1997), I not only played with my cousins, but also helped my uncle's family in the stables and the fields. With them, I participated in labor exchange activities, as well as in various seasonal Catholic festivities, village feasts, weddings, and funerals. In 2000, when I started to pursue a doctoral degree in anthropology, every new visit home and to the village enriched me with a deeper understanding of the villagers' behaviors and of the practices they employed in response

to external influences. For instance, through labor exchange practices and supporting those in need, I observed reciprocal altruism; through critiques and gossip, I witnessed behavior control mechanisms; through observing frequent socializing in front of homes, I saw farmers' times to discuss farming practices, make daily work arrangements, or simply maintain community relationships. These experiences, and many more, I studied in depth during my fieldwork.

Over the years of returning to the village, I developed a "re-bonding ceremony" whenever I entered the village. It begins the moment I turn off the interstate from Zagreb to Belgrade and begin to head east. Visually, I embrace the views of endless fields of the Štitar *atar*, or taxable land unit, and its bordering canals which are filled with green water and overgrown with wetland grasses. In the background, I see the Rastovica Forest which borders the Sava River—a historical border between Croatia and Bosnia. Immediately before entering the village, I pass the village cemetery and say a silent 'Hello' to my uncle, my aunt, my grandparents, and other predecessors I never met. Then I cross the Berava Creek and find myself in the village. I inhale the smell of canals' standing water mixed with the aromas of the women's cooking. I hear the familiar dialect of the people and the sounds of ducks, cows, pigs, and frogs. As I drive beside the levee toward my aunt's house, I re-connect with childhood memories and remind myself of the wealth of tradition and the importance of family and community.

There is no doubt that my dissertation combines both my personal feelings and my anthropological training during my preliminary fieldwork from May 27 until June 18, 2001 and my doctoral fieldwork from August 23, 2003 until March 1, 2005. Years of visiting my family and participating in village events made it much easier to be invited

into the homes for my initial village census, conducted in 2003. It also benefited me by opening more doors to households for random visits for a year. It was not easy to earn the trust of villagers who never trusted any governmental institutions, and who, at first, often did not trust my intentions either. However, remaining in the village for over a year was the best representation of my intentions; it allowed me not only to gain their trust but also to become friends with some people who initially refused to be surveyed and who asked me to leave their homes.

During my fieldwork, I always explored ways to avoid falling into the role of a "super social scientist" who studies her "subjects." I tried to blend into the village environment as much as possible. I wore old, rugged clothes to the fields and stables; I walked, rode a bike, or traveled by tractor to almost everywhere; and I did not hesitate to get my hands dirty with farm and household labor. I wanted the people I observed to be who they were, despite my presence, and I wanted them to see me as "one of them" as much as possible. Although I always remained a foreigner and an observer, they very quickly became accustomed to my random visits and my inquiries about their daily experiences.

Research design

Upon my arrival in Štitar in August 2003, I called a village gathering where I introduced myself and explained my intentions and my study. The response was extremely low, but it did not worry me because I knew the word would spread quickly, even more so after I began my census. From September until December 2003, I surveyed 508 homes in a total of 644 households (see Table 1.1). In addition to 508 homes whose

owners I found in the village and who provided me with basic information about their homesteads, I was unable to survey 85 houses (or 13 percent), because they were either empty due to their owners deceased or they lived and worked abroad. Further 51 households (8 percent) refused to be surveyed, were mentally unable to provide information, were not found at home after a several visits, or were not safe to visit. Thus, 79 percent completed the village census, providing an above average response rate according to Karlton (1983).

Nowadays, response rates for uncomplicated face-to-face surveys carried out by nongovernmental survey organizations are about 70–75 percent with variability around this range according to the survey conditions. As a general rule, refusals constitute the majority of the non-responses with the rest being mostly non-at-homes (Karlton 1983:66).

My refusal rate of 8 percent is notably low. The majority of these households were non-farming households or their members were involved in some kind of illegal activity from time to time which they did not want me or anyone else to know about. Thus, these households were not crucial in answering my research questions.

Table 1.1 – Village census 2003 response rate

	Agreed to be surveyed	Refused survey	Out of country	Vacant	Total
Number	508	51	42	43	644
Percent	79	8	6	7	100

Upon the completion of the village census, I chose a random sample of 42 households. Among 559 households that were present in the village at the time of my census, my focal sample accounts for 7.51 percent of the village population. The 42 households I divided in four strata, depending on their engagement in agriculture and their market orientation. Each of the household types is represented in the sample according to the proportion it represented in the census (see Table 1.2). Therefore, the

stratified sample of 42 households has nine high, nine medium, ten low, and fourteen non-market-oriented households. Later, one non-market household quit, and I was not able to replace it quickly enough, forcing me to carry on a study with 41 households instead. In other words, I had a sample of 13 non-agricultural and 28 agricultural households with variable amounts of land holdings, volumes of production, and market involvement, all of which helped me better understand certain correlations, such as that between land size and the number of household members.

Table 1.2 – Household types and number of households in each stratum

Household type	High market	Medium market	Low market	No market	Total number of households
I	2	3	4	1	NA
Stratum size N_i	55	62	130	261	508
Sample size n_i	9	9	10	13	41
Percentage	11	12	26	51	100

In creating the household types, I followed some guidelines from the Ministry's Agricultural Census 2003, which divided farms between "market" and "non-market orientated." Since the Ministry had not published enough details about the attributes they used to categorize rural households, and the Agricultural Census had not been analyzed when I began my study, my household types may not always correspond in detail to the Ministry's results. Despite this, I collected enough information in my census to be able to create categories that were suitable for my study. I divided market-oriented households into full-time agriculture or high market, and part-time agriculture or medium market. The Ministry's "non-market-oriented" households coincide with my low market. My last household type was non-agricultural households, or non-market-oriented.

Table 1.3 describes attributes I used in creating the four household strata. The households that produce more than 0.4 production units (for a definition of production unit see footnote 3) are categorized as agricultural households and are further divided as high, medium, or low market-oriented. High market households produce more than 3 production units. Agriculture and farming-related activities provide most of the household income. All of the household members work on the farm full-time and do not engage in any legal and full-time employment. Medium market households also produce more than 3 production units, but one or more household members have some kind of legal full-time, part-time, or seasonal employment. Both, high and medium market households have enough hectares under a certain crop or enough animals to meet the minimums required for the production subsidy of 2003. On the other hand, low market households produce between 0.4 and 3 production units and do not produce enough to meet the required minimums for direct payment support in 2003. They sell some surplus but mostly produce for subsistence. Also in this category are the households whose members are older than 50 for women or 55 for men and who own a minimum of 3 hectares of land. These so-called elderly households are eligible for the Ministry's Agricultural Income Support Program instead of the production support. Finally, non-agricultural households produce less than 0.4 production units and own very little or no land. Their income comes primarily from non-agriculture related activities in addition to occasional craft or food product sales.

Table 1.3 – Description of household types

Household types	Characteristics
Agriculture and high market-oriented	<ul style="list-style-type: none"> - Produce 3 or more PU - Produce minimum amounts required for direct payment in 2003 - All household members live off agriculture or agriculture related activities, and do not hold a full-time and off-farm employment
Agriculture and medium market-oriented	<ul style="list-style-type: none"> - Produce 3 or more PU - Produce minimum amounts required for direct payment in 2003 - Household head or another household member(s) has full-time employment (or work pension) and does agriculture on the side
Agriculture and low market-oriented	<ul style="list-style-type: none"> - Produce between 0.4 and 3 PU - Do not produce minimum amounts required for direct payment support in 2003, but produce food for subsistence only - Often one or more members have a full-time employment - Also, elderly households whose members are older than 50 or 55 and own at least 3 hectares of land
No agriculture and non-market-oriented	<ul style="list-style-type: none"> - Produce less than 0.4 PU - Income comes from a full-time employment or other non-agricultural activities

Full-time and high market households comprise the smallest fraction of the interviewed village households (11 percent), as presented in Table 1.2. Next are part-time and medium market households (12 percent), some of which produced enough to meet the minimums required for the production subsidy of 2003, but not the increased minimums of 2005. Hence, the Ministry encouraged these farmers to increase production volume by expanding or growing new crops that yield higher profit margins in the small fields. The highest fraction of the village households, or 51 percent, owns little or no land and is non-agricultural. The remaining fraction of 26 percent is low market households.

The sample of 41 households provided me the basis for conducting ethnographic and empirical research. For 12 consecutive months, I conducted a spot check time allocation

study (Borgerhoff Mulder and Caro 1985; Netting, Stone, and Stone 1995). I collected time and labor allocations every other week, from Monday through Sunday. Six days a week, I visited seven households with only six on the seventh day, all between 7:15 a.m. and 7:45 p.m., with two hour and fifteen minute increments between the visits. Such spacing of the visits allowed me to be able to converse with people or participate in household activities, which I preferred over dropping by for a visit only long enough to record household member activities. I worked every day during weeks that I visited homes regardless of the national, religious, or village holidays. The only day I did not work was on Christmas Day 2004, as I thought that would be seen as rude in a Catholic community. The households I needed to visit on Christmas I visited on another day and at a time that was chosen randomly. Based on the time and labor allocation dataset, I was able to calculate annual labor hours by household types as well as time expenditures in the calculation of labor productivity.

In addition to collecting time and labor allocation data, I conducted a household survey regarding their plant and animal production, consumption and sales, farm size, amount of land owned and cultivated, farm machinery, household income, and so on. I also asked the participants to keep an input/output diary for a year, though only a fraction of the 15 households kept them on their own (four high market, four medium market, three low market, and four no market households). I collected the diaries every two weeks. With the rest of the households, I kept a diary based on their memory of the household income and expenses for the previous period. I also collected a month-to-month milk quantity and quality analysis in those households who kept cows. Furthermore, I asked the women to tell me how many kilograms of vegetables they

produced and how many kilograms or liters they stored for future use. Analyses of these datasets also allowed me to calculate agricultural labor productivity.

I also chose a key participant who was a high market farmer with a long tradition of family farming. Despite his workload, he agreed to meet with me in the evenings after he was finished with his farm work. We met for several evenings throughout the year to record a detailed plant production and animal husbandry diary with all the inputs and outputs. This farm production data allowed me to calculate labor inputs and outputs for specific crops and dairy production.

During the weeks when I did not collect time allocation data, I visited archives in Vinkovci and Osijek to search for documents regarding Štitar. I also read the registries of births, deaths, and marriages, exploring the family genealogies of a few Štitar farming families, one of which was my own. An unexpected result of that research was finding that my lineage as a Dominković was hard to trace because of multiple households with the same last name. What differentiated these households was the house number, but because I did not know which house I came from, I studied the three oldest Dominković lineages. I was able to trace their members over the course of 250 years. Coincidentally, one of the family's genealogies I was exploring was in my sample. The extensive history of this family not only supplied this dissertation's introductory stories, but it also spawned the idea for understanding the reasons for break-ups within the *zadruga*, which is a divergence off the traditional research path of exploring external influences.

In addition to the archive visits, I visited the Štitar municipal office where I found more recent registries of births, deaths, and marriages. I also visited Županja Cadastre Office and The Land Ownership Office, where I gained a better understanding of how

land was divided by the Habsburg Monarchy and how the field plots were created and re-created. I visited the local library in Županja, and the National University Library in Zagreb, where I collected published articles about Štitar and the Županja region.

Once I completed my ethnographic and empirical study in Štitar in late December 2004, I relocated my research to Zagreb, where I conducted personal interviews with two Assistants to the Minister of Agriculture and two policy administrators at the Ministry. I also conducted interviews with two CAP administrators in Brussels. These interviews helped develop a deeper understanding of how Štitar family farmers need to transform to meet the CAP.

I collected oral history from the Štitar villagers by keeping notes during conversations. On several occasions, I recorded my participants' recollections, and these stories formed most of my chapters' introductions. I also recorded all interviews with the policy makers in Zagreb and in Brussels, except one for which I kept notes. Most of this recorded material is used in chapter eight and put in long block quotes. Since stories told by the villagers were not always recorded I was not able to write them in long block quotes, which may give a feeling to the reader that I was giving more value to the statements of the authorities than of the farmers. This was not my intention. The villagers' stories are far more extensive and they provided me with endless and irreplaceable wealth of information. All the names of my informants are changed, except those of my own family members, who I know for sure are happy to be mentioned.

With that introduction, let us return to the beginning and start learning how Štitar family farmers changed their behaviors and practices and adapted to the previous political regimes.

Environmental settings of larger scale

Introduction

A study that focuses on surveying long-term changes to landscapes brought about by human activities is called historical ecology (Crumley 1994:6). Historical ecology is interested in landscapes that can be studied across time and space—living and non-living (Carole Crumley, personal communication: March 17, 2002). In her study of Burgundy ecosystems over a time span of two millennia, Crumley (1987) employs several temporal and spatial scales in exploring not only changes in human activities but also changes of non-living phenomena, such as climate and soils. Similarly, my study of a rural farming village in Croatia relies on various spatial scales combined with several temporal scales. As I believe it is difficult to describe and understand a local climate or a soil type without providing a picture of a larger system, I begin an exploration of the village by studying non-living and living elements of the landscape of southeastern Europe.

This chapter begins the study of several hundred years of the existence of Štitar smallholders by providing an overview of southeastern Europe, Croatia, and the Croatian eastern region of Slavonia. The chapter offers a short description of the biophysical systems—soils, climate, hydrosphere, and land cover—that formed and influenced the

landscape. Attention is given to the climatic history, forestry, agriculture, and the population density of southeastern Europe and Slavonia.

In addition to the wide spatial scale, the time span under discussion is also great. The chapter begins by exploring southeastern Europe in Paleolithic times, but it mainly focuses on the Neolithic Age, which began in this area about 7000 B.C.E.⁵ and lasted for roughly 4,000 years. For European archeologists, the Neolithic period is of interest because of the occurrence of agriculture and sedentism. Alasdair Whittle (1996:1) states that Neolithic societies first appeared in southeastern Europe between 7000 and 5500 B.C.E. Then they appeared in central Europe in approximately 5500 B.C.E. and finally in northwestern Europe near 4000 B.C.E. By employing wide spatial and long-term temporal scales, I attempt to explore dynamic relationships between environmental systems. Combined with a study of this region's historical ecology presented in the following two chapters, this chapter offers a historical background to the exploration of the current change facing the Štitar smallholders in the global market economy.

Environmental setting of southeastern Europe

Borders

Two Croatian rivers form the boundary of the Balkan Peninsula—the Sava and Drava—which also delineated different political entities throughout history (see Figure 2.1). The Sava River has often been designated as the northwestern boundary, as it once

⁵Refers to "before the Common Era". The "Common Era" is the period of measured time beginning with the year 1 on the Gregorian calendar.

constituted the Ottoman Empire's most stable border. The Drava River served a similar function, as it once formed a border for the Kingdoms of Croatia and Hungary.⁶

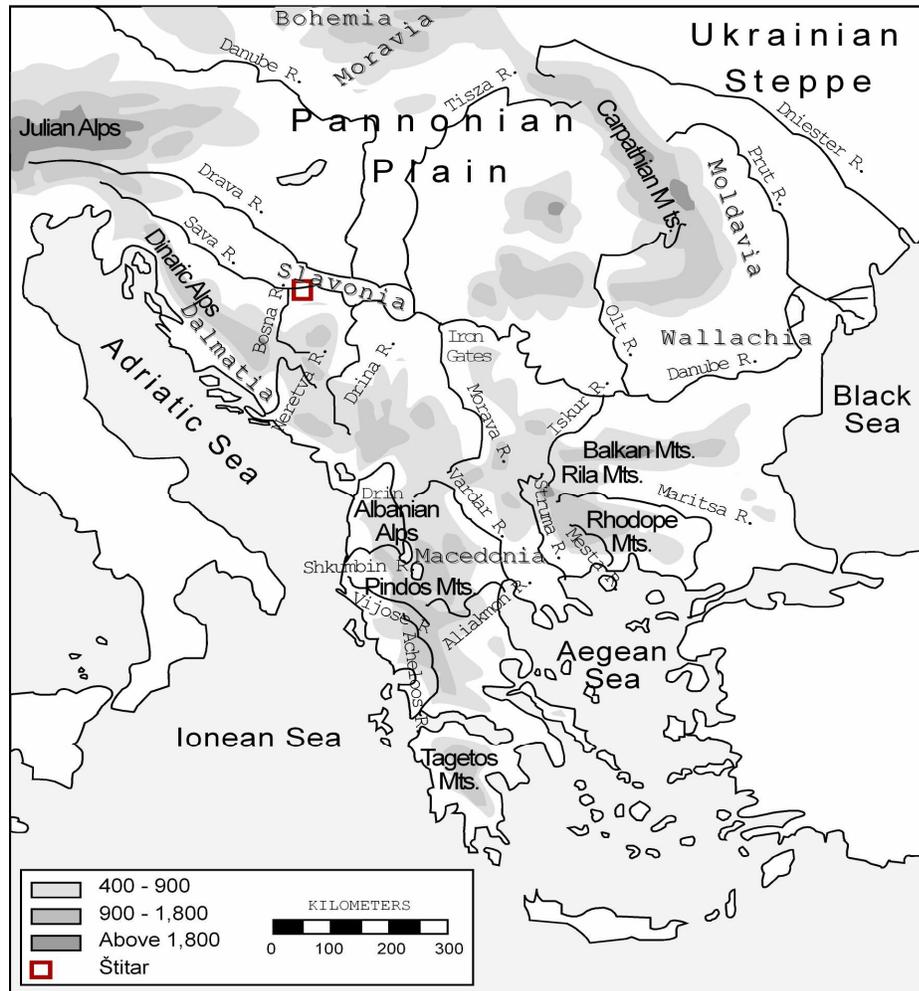


Figure 2.1 – Mountain chains and river valleys of the Balkan Peninsula

Geology

The Balkan Peninsula owes its name to the many forested mountains⁷ which cover it.

The foundation of the mountainous peninsula is formed from ancient hard and

⁶It is interesting to note that using Drava and Prut Rivers (Prut has been used as a Balkan northeastern boundary) as parts of geographical borders, the Balkan Peninsula encompasses some 716,653 square kilometers of territory (Hupchick 2002:2).

⁷The name "Balkan" is a colloquial Turkish word for a forested mountain (Hupchick and Cox 2001:Map 1).

metamorphic rocks. These rocks constitute the core of most of the Carpathian, Balkan, and Rhodope Mountains and they also underlie the Pannonian Plain (Pounds 1969:6) whose southern tip extends into the Croatian eastern region of Slavonia (see Figure 2.1). Although Štitar is located in eastern Slavonia, as I discuss later its soil types are different from the fertile loess of the Pannonian Plain. Its location in the Sava floodplain left Štitar with poorly drained and less fertile alluvium.

The plains of Hungary, Walachia, Moldavia, Macedonia, and the Maritsa River were formed after the building of the nearby mountain systems when semi-arid conditions set in. Shallow sea and lakebeds were laid down with relatively thin limestone and interspersed with beds of clay and sandstone. Evaporation of these seas and lakes left salt deposits. Such sedimentation processes were a prelude to the most recent mountain-building phase—the Alpine.⁸ Erosion of these mountains has led to the Aeolian loess being deposited over large areas of lowland in central and eastern Europe (Pounds 1969:7–9, Tringham 1971:26), part of which is the Pannonian Plain.

Beyond vast forests and fertile loess areas, other natural resources of the southeastern European mountains include an assortment of metal ores—iron, zinc, chrome, lead, antimony, copper, nickel, gold, and silver ores—as well as minerals such as bauxite, lignite, and chromate. The Carpathian foothills in the north hold the largest oil deposits in continental Europe (Pounds 1969). These resources made the Peninsula interesting to many foreign intruders, as I present below its geopolitical history.

⁸East of the Alps are two branches of Alpine mountains. One branch is located toward the northeast and is the arc of the Carpathian Mountains and the Transylvanian Alps that continues south of the Danube as the Balkan Mountain. Another branch stretches along the western part of the Peninsula in the Dinaric Alps, located along the Adriatic Sea coastline in Croatia. These mountains are mainly composed of limestone with characteristic karst scenery. Pounds defines this area as the "the most extensive area of karst in Europe, and perhaps one of the most extensive and spectacular in the world" (1969:16).

Soils

The soils of southeastern Europe could be divided into those of the cool and humid north, those of the drier plains of the middle and lower Danube Valley, mountain soils, and alluvial soils (Pounds 1969). For the purpose of presenting the soils of my research area—Slavonia en large and Štitar in particular—I only describe in more detail loess and alluvial soils.

Loess are the soils of the natural grasslands of the middle and lower Danube valleys that have less rainfall. These lighter soils are wind blown deposits, derived from the drying clays left by the melting ice. They accumulated as a thin deposit over much of the lowland of central and eastern Europe. These soils can be divided into two grades, one of which is chernozems. The chernozems are very fine, fertile soils, which are easy to work, but are quickly eroded once their vegetation cover has been removed. They cover most of the eastern part of the Pannonian Plain and are found over considerable areas of Walachia, Moldavia, Bohemia, and Moravia. The southern margin of the chernozems spread over eastern Slavonia, which is thus known as the "Croatian granary."

Different from most of eastern Slavonia, Štitar sits on alluvial soils due to its location in the Sava floodplain. Alluvium is a soil eroded from the mountain slopes and commonly deposited in the nearby basins and along valley floors. Alluvial soils cover extensive parts of the Pannonian Plain, border the lower Danube, and are found along the Sava, Drava, and Drina Rivers. Much of these soils need drainage before they can have any agricultural value (Tringham 1971:28–30, Pounds 1969:34–37). As the historical ecology in the following chapters presents, there have been efforts in draining soils of the Štitar area, but for financial reasons the process was never completed.

Climate

Between 6500 and 5500 B.C.E. there was a tendency toward a more continental climate over the entire European region, which encouraged the growth of mixed oak, hazel, and elm forests along the Dalmatian coast (Tringham 1971, Pounds 1969). Forest-steppe vegetation predominated in the lower Danube valley, mostly on the loess and alluvial deposits. Most forests were populated with deciduous trees, which grew near the mountains where the chernozems and brunizems mixed to form brown forest soils (Tringham 1971:31).

After 5500 B.C.E., the climate shift toward warmer and wetter winters and cooler and wetter summers⁹ resulted in the spread of hazel, lime, elm, and birch in the lower Danube basin. Evergreen forests, including juniper, dominated the Mediterranean coast. Everywhere in Europe the forest growth was maximized before 4000 B.C.E. After that time, the climate gradually became more continental, and a mixed oak and hornbeam forest occurred on the loess deposits of central and southeastern Europe (Tringham 1971:33). Hence, red oak is the predominate species of the Slavonian forests.

Hydrosphere

Except for the narrow coastal plains, most of the southeastern European lowlands are river valleys. The largest valley is that of the Danube River, with its course of 2,850 kilometers. Its tributaries drain much of Moravia, the Carpathian Mountains, and Transylvania in the north, and the Austrian Alps, the Dinaric, and Balkan Mountains in

⁹A shift toward the warmer climate caused Scandinavian glaciers, and many others, to disappear, which resulted in a general rise in sea level (Tringham 1971:31, Whittle 1985:8). This rise in sea level occurred all around the coasts of Europe. Due to this phenomenon, loss of land in the Mediterranean was considerable, especially in the shallower northern parts of the Adriatic (Whittle 1985:8).

the south. As it approaches the southwest of the Pannonian Plain, it picks up the Sava and Morava Rivers, which along with their tributaries drain much of the Balkan Peninsula. Many of the other important contributors to the Danube watershed are small and often dry. Nevertheless, these river valleys provide arable land in the mountainous interior, with cereal crops grown predominately in lowlands (Hupchick 2002, Pounds 1969).

Over time, the rivers became southeastern Europe's most important assets. A few larger rivers, mostly of the Black Sea basin, were deeper and less irregular in their flow and thus suitable for navigation. The Danube is considered navigable from near Ulm in Bavaria to the sea, a distance of approximately 2,600 kilometers. However, due to many obstacles to navigation throughout its course, the Danube's great potential has never been fully realized. In addition, the Tisza and Sava Rivers are also considered navigable, although much technical work remains to be done if any of these three rivers are to become easily navigable (Pounds 1969:24). Before the war in the 1990s, the Sava at Štitar carried ships with merchandise from Zagreb to Vukovar and Belgrade. Today, the only boats still present on the river are gravel-dredging vessels.

Vegetation

Primeval vegetation of southeastern Europe included deciduous oak woodlands as the dominant lowland vegetation. The uplands contained more fir and pine (Whittle 1996:16). The Mediterranean light woodland was never as dense as it was north of the Alps (Pounds 1990:9). This primeval forest vegetation began disappearing with the occurrence of the Neolithic farmers who made significant inroads into areas of forest where soils were good for cultivation (Pounds 1990:16–7, Tringham 1971:33). Since the

wood was needed for cooking, heating, and construction, the woodland cover near the coasts of the Adriatic and Aegean seas were replaced by the drought-resistant Mediterranean vegetation of scrub and xerophytic trees. By contrast, the forests of Dalmatia along the southern part of the Adriatic coast did not disappear until the Middle Ages, when they were cut to build ships for the Venetians.

It would be wrong to claim that agriculture was the sole factor in forest disappearance. The occurrence of a drier continental climate coincided with population increases and brought to a disappearance of certain type of forests. Population increases were a result of the emergence of plant cultivation for feeding both humans and animals. This climatic change also caused a sudden decrease in various trees such as elm and hornbeam (Tringham 1971:33–4).

Geopolitical position

The Balkan Peninsula has a historical strategic significance as the crossroads of three continents—Europe, Asia, and Africa. Its accessibility by land and sea makes it subject to political, military, and cultural human incursions from all directions,¹⁰ which made the political life of the Peninsula unstable.

Throughout history, the Balkans have been ruled by small states that have fiercely competed for the available natural resources which were often both geographically restricted by mountainous topography and geopolitically blocked by borders. The Balkan states nearly always proved vulnerable to outside empires that competed for control of the region. Thus, the resources rarely benefited the inhabitants (Hupchick 2002:3). For

¹⁰It is interesting to note that at various times six foreign empires—the Persian, Roman, Byzantine, Ottoman, Habsburg, and Russian—sought to possess all or part of the benefits of the peninsula's strategic location and natural resources.

instance, in Slavonia, as I discuss later, oak forests were exploited by the Austro-Hungarians. Moreover, the Balkan coast with its important seaports was often controlled by foreign states which barred the interior states from securing outlets to the seas. For these reasons, the economies of the southeastern European states remained primarily agricultural far into the 20th century (Hupchick 2001: Map 1).

Environmental setting of Slavonia and Štitar

Borders

Most of the Slavonian territory lies between the rivers Drava in the north, Danube in the east, Sava in the south, and the mountain ranges of Psunj, Ravna Gora, and Lisina in the west (Njegač 2002:339) (see Figure 2.2). The region of Slavonia is further divided into western and eastern Slavonia. Štitar is located in eastern Slavonia.

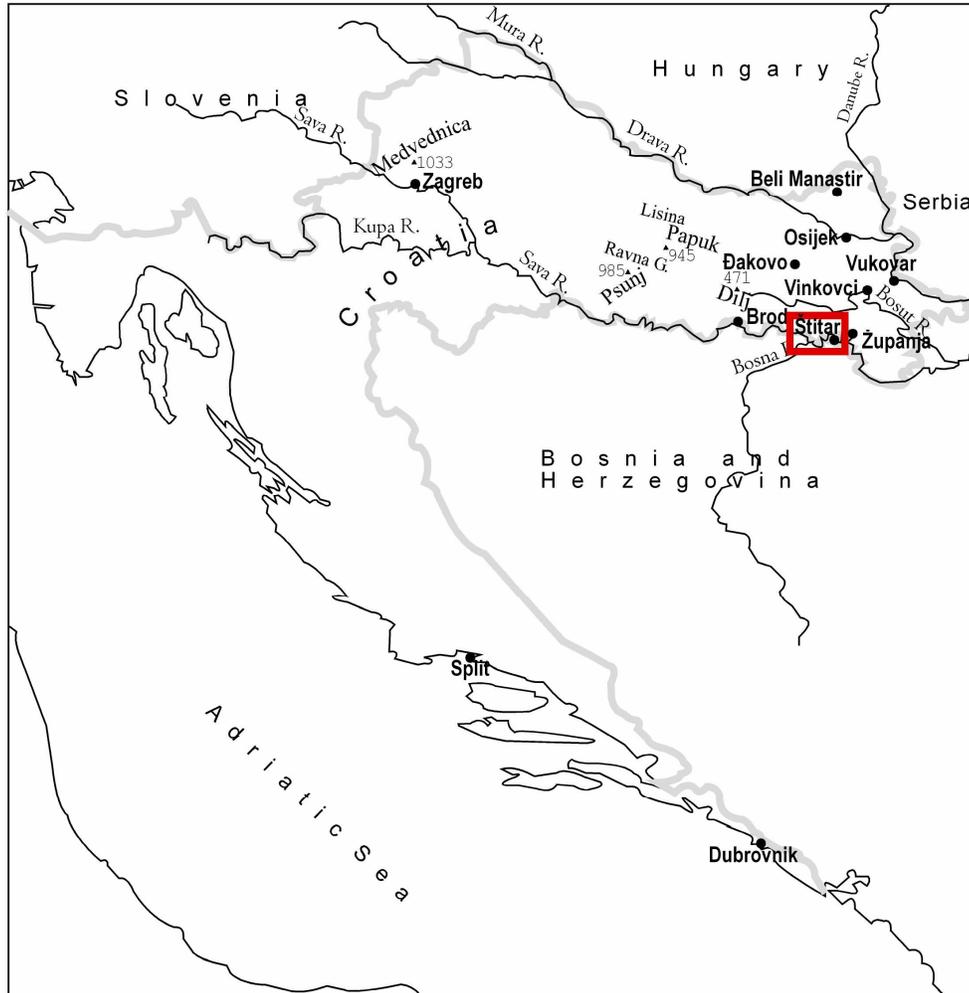


Figure 2.2 - Borders of Slavonia

Topography and soils

The plain that lies south of the Drava River forms the historic province of Slavonia. The western part of the Slavonian plain is characterized by the river plains of Sava and Drava and by the western Slavonian hill range which is crossed with a variety of river and stream plains (Njegač 2002:339). The eastern Slavonian plain is an area with loess and alluvial plains. Loess layers settled in the valleys sometimes rising above the flood plain to heights of 61 meters or more (Pounds 1969:655).

Since the surface of the loess plateaus is fairly level there is little surface drainage. In addition, the loess deposits often survive as butte-like forms where rivers have cut into their surfaces and formed cliffs. These areas are well known for their fertility and are under cultivation (Pounds 1969:655). For instance, loess plains in the areas surrounding Đakovo, Vukovar, and Beli Manastir are higher than their surrounding alluvial plains and therefore are more fertile and ecologically more advantageous for agriculture and settlements (Njegač 2002:339).

Apart from the loess valley to the east, the valleys of the Sava and Drava Rivers are covered with recent alluvium. These alluvial soils are often poorly drained. They remain wet until early summer and again become saturated in early fall (Pounds 1969:656). Both the Sava and Drava have a gentle gradient and meander across their plains, which can be as large as 8 kilometers across. Settlements are often terraces that rise in steps to the level plains. These settlements are usually only two or three kilometers from the river. Štitar, however, is right on the river. Often, between the settlements and rivers are found meadows which are used as pastures. A couple of such pastures exist on the outskirts of Štitar, called Poloje and Ledine (see Figure 2.3).

Štitar lies in the second of the three bends the Sava River makes near the Županja Township. The village is located on the river flood plain at 85 meters above sea level. Agricultural fields surround the village, and people refer to different fields by area names as presented in Figure 2.3. Despite its location on a terrace, soils of Štitar *atar* are poorly drained because of high underground water tables. Poor drainage combined with high carbon content significantly decreases the soil fertility of the Štitar *atar*, which is evident in lower overall crop yields (Urbanistički Institut SR Hrvatske 1979:24). The village is

protected from frequent flooding by a levee, but the surrounding fields are often wet due to the shallow underground waters, which can be found from only 0.5 to 7 meters below the surface. Due to the formation of hydraulic pressure between the underground waters and the Sava, as the Sava water level rises, the underground water level rises as well, which wets the fields. In places, rising underground water gushes to the surface as temporary geysers.

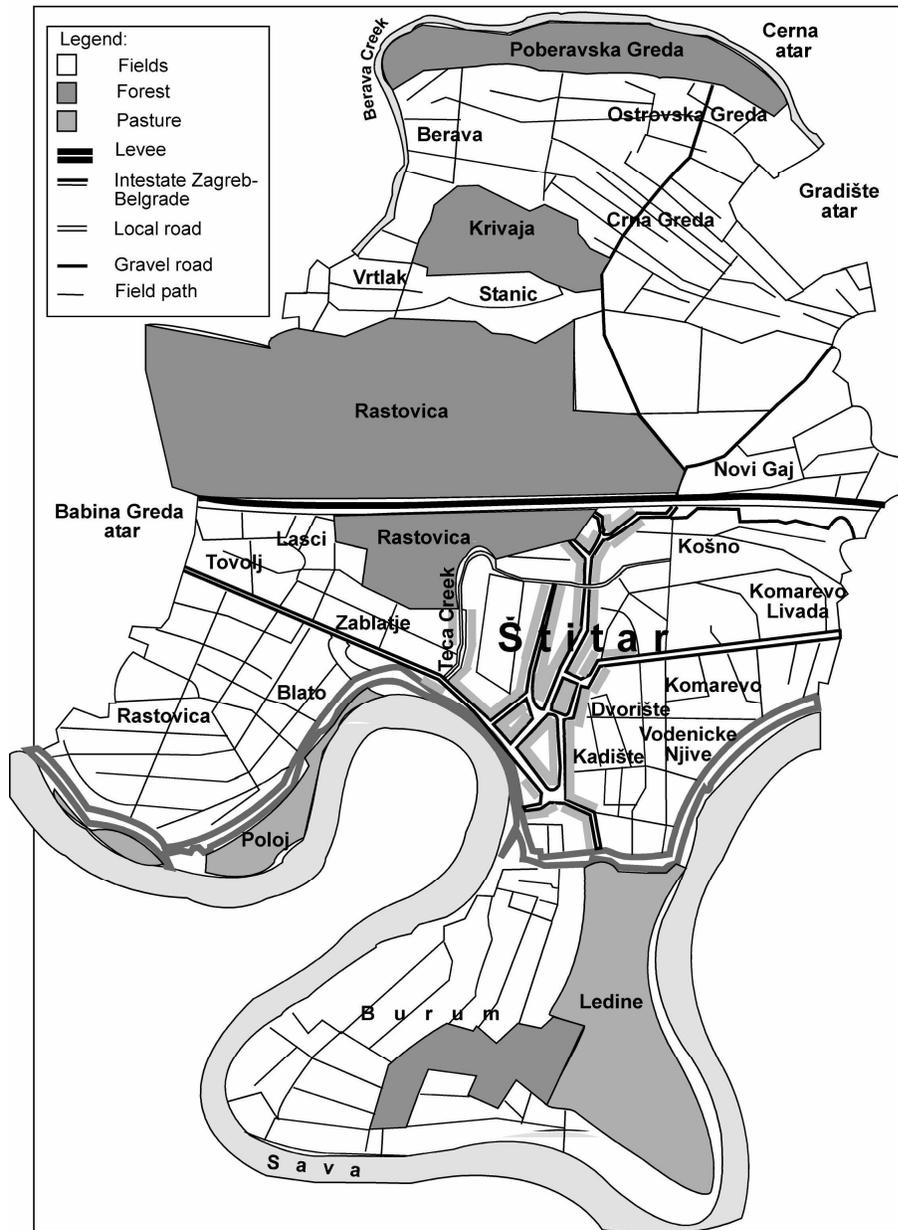


Figure 2.3 – Štitar and its surrounding area

Climate and temperature

Slavonia is influenced by a mild continental climate. It receives precipitation of 700–1,000 millimeters per year (Crometeo 2006). The rainfall is relatively equally distributed over the year, with the peak precipitation in May and June. There can be heavy precipitation in October, but there often is very little in February. Months of heavy

precipitation coincide with the growing season, which lasts from April 1 until September 30. Frosts occur between December and March, with less frequent but more dangerous frosts occurring in April and May. Hail may appear from May through July, but on average occurs only one or two days a year (Crometeo 2006). Hail varies locally, and is present more often in the open agricultural areas than in the forests (Urbanistički Institut SR Hrvatske 1979:28). The average annual temperature in Osijek is 10.9 degrees Celsius, with the average of 1 degree in January and 21.5 degrees in July (Crometeo 2006).

The combination of a climate that brings the majority of precipitation during the growing season along with high underground water levels and poor soil drainage dictate the course of farming lives for Štitar settlers. They have always been aware of the natural disadvantages brought by the location of their village. They often compare the soil of their *atar* to that of the neighboring villages of Babina Greda and Cerna which are lighter in weight, better drained, and thus more fertile. Such soil characteristics are well known to the local farmers but often forgotten by farming specialists who offer modern knowledge in raising new crops. Heavy and often moist soils have resulted in failed performances for some new crops. Despite these natural disadvantages, Štitar villagers have continued to grow crops which can grow in these soil conditions. Every year, farmers carefully plan which crops to plant in each field, depending on the crops' tolerance for increased soil moisture. They know that sugar beets need moisture to develop a larger root, but they also like well-drained areas, so farmers plant them in their best drained fields that retain enough moisture. Wheat and maize on the other hand, can tolerate drought and even standing water for a short period of time. However, as the risk

of an excessively rainy season always remains, farmers ultimately know that much is out their control.

Hydrology

Croatia consists of two watersheds—the Black Sea which covers 60 percent of the river flow and the Adriatic Sea which receives the remaining 40 percent. The largest river of the Black Sea watershed is the Danube. Vukovar, in eastern Slavonia, was the largest river port before the war in the early 1990s. The Danube and its tributaries are largely influenced by rainfall (Goldstein 1999:41). For instance, the Sava's flow is affected by many of its tributaries, the largest of which is the Bosnia River. With its river basin of 10,480 square kilometers (Tkalac 1973:107), the Bosnia collects large volumes of water during excessive rains, which then raises the Sava water level.

Vegetation

Since the Roman times until the 18th century, the Slavonian forests offered an abundant supply of building material, fuel, and food to the local inhabitants. The forests began to disappear when the Austro-Hungarian Monarchy started to build military forts and fences and to export Slavonian red oak into western Europe.

Even as late as the 18th century, as Croatian historians state, the forest covered 70 percent of Slavonia (Rauš 1979, Tkalac 1973). Red oaks ranging in age from 150 to 300 years were found in tremendous tracts of timber. It was estimated that in 1870, Slavonia had 74,810 hectares of red oak trees, and in 1925, only 5,369 hectares remained (Rauš 1979:75). Deforestation at the end of the 19th century aided development of the first industry in the area—tannin production (Janjić et al 1988:27). Forest logging changed the

look of the landscape and the life of the local people in many ways, as described in the stories of the local writers such as Mara Švel-Gamiršek (1942) and Josip Kozarac (1964). While logging brought industry and jobs for the local inhabitants, it also removed a habitat that provided food and fuel for people and animals. The local villagers often benefited less than the Austrian and German loggers who earned money by exporting raw wood far away.

Today, what is left of the Slavonian forest on the Štitar *atar* belongs to the Rastovica Forest section. The locals have their own names for different forests of the section, such as Poberavska Greda, Rastović (or Little Forest), Ljaljevac, Burum, and Zaostrovo (see Figure 2.3, page 45). Zaostrovo Forest has a special function and is managed in a different way. It is a 122-hectare forest of 160-year old red oaks that are left untouched and allowed to produce acorns for reforestation. In years of good acorn harvest, the Forest Service offers to buy collected acorns. Local people, primarily women, collect acorns for several days as a way to earn additional income. The Forest Service uses the acorns in reforestation throughout the country. Since 1982, Zaostrovo has been exempt from annual tree cutting, and only the removal of damaged or dried trees is permitted. This makes Zaostrovo the oldest forest in the Rastovica section. At one point, there was a discussion about abolishing this forest as an acorn-producing facility and turning it over to regular forest management. However, due to the absence of any similar forest in the area, Zaostrovo remains under the special forest management (Mato Gasparović, personal conversation: April 4, 2004). Although the forest cover has shrunk, Štitar forests continue to supply the villagers with firewood, though the Forest Service restricts what

and when wood is available for harvesting. I return to discussing forest management in the following chapter.

Summary

With the goal of setting an environmental and historical scene for my research area, this chapter focuses on a wide spatial and long-term temporal study of environmental systems and on the historical ecology of southeastern Europe. The historical ecology of Slavonia and Štitar is the focus of the following chapter.

This chapter introduces us to the mountainous topography of the Balkan Peninsula whose forests eventually disappeared due to climatic change and human activity. The forest depletion continued as different political regimes swept over the Balkan Peninsula and took advantages of its natural resources. A similar fate befell the region of Slavonia, when the Slavonian red oak forests were exported toward the end of the 18th century. Rapid forest exploitation had detrimental consequences on the environment, but it also brought about the development of the wood processing and tannin industries in the Štitar area. These industries offered jobs to the local people who, as is presented in the next chapter, had left the *zadruga* and were looking for ways to make a living that did not include farming.

Beyond forests that offered wood, food, and fuel to the local inhabitants, the different soil types of southeastern Europe also supported agriculture. Although large tracts of plains are covered in fertile chernozems, Štitar has always been influenced, and its settlers challenged, by the Sava River and its affect on local water levels. The location of the village in the alluvial flood plain and the fact that the village is subject to high

underground water tables have greatly affected yields and thus the household incomes of generations of farmers as I describe in the following chapters.

Lastly, this chapter describes the Peninsula's important geopolitical role—a result of its location at the crossroads of three continents. This location often brought trouble and political instability to the Peninsula's inhabitants, who have been prey to many world-expanding political regimes. Like the Peninsula itself, Croatia as a country, and even more so, Slavonia as a small region of the country, has witnessed many regime changes, some of which are described in more detail in the following chapters. With the environmental and historical background provided in this chapter, chapter three explores the history of Štitar since its establishment in the 14th century. It also describes the life cycles of Štitar smallholder families since the late 19th century in an effort to provide an answer to my first research question. How did Štitar farmers respond to the past external changes brought by political regimes and market economy?

Štitar swept by political regimes

This chapter's introductory story begins the exploration into how Štitar farmers have responded and adapted to various past external social and economic pressures, as addressed in my first research question. The story also delves into internal factors that brought about the Dominković *zadruga*'s split into a few smaller families. Traditionally, the reasons for the *zadruga* disintegration were tied to a set of external changes. However, I attempt to offer a different explanation that is tied to the changes in a family developmental cycle. The story also introduces aspects of life and elements in the landscape that were created by certain political regimes, such as the village architecture, structure of fields, role of field houses, and the borderland market restrictions. What role these behaviors and practices had in securing the long-term existence of Štitar smallholders is explored in the remainder of this chapter.

The first and second splits of the Dominković *zadruga*, *kbr.* 76

In the early 19th century, the family of Đuro Dominković lived at *kbr.* (house number) 76 in Štitar. The house number tells that their home was the seventy-sixth home built in the village. The creation of villages characterized by clustered and numbered

homes was a mandate of the Austro-Hungarian Monarchy during the 18th century.

Previously, families lived in homes near their fields which were scattered throughout the Štitar *atar*.

The Dominković *zadruga* lot was located at the corner of two streets, where the village church was later built. The family opposed the church to be built on their land.

The church was built on our lot. But, I heard them say that our elderly members did not want to permit it. At one time, it was Dominković property all the way to the corner. Then they took the corner lot and built a church on it. They put the stakes up for the church, and when our older family members came home from the fields at the end of a day they pulled the stakes out. Despite their resentment, the church was built. But somebody told me recently that the lot is still in the Dominković name. It was never transferred to the church,

remembers *teta* (aunt) Manda (personal communication: February 19, 2005). Almost two hundred years after the church was built, I was told this story by one of the many living members of this former *zadruga*. While Manda, my storyteller, was a child who was too young to go to the fields, her grandmother Luca was too old to work in the fields. Thus, the two of them stayed at home while the rest of the *zadruga* members went to work in the fields. *Teta* Manda and *baba* (grandmother) Luca spent many days telling stories about the life of the *zadruga* and how the families later divided it.

Đuro and his wife, Magdalena, were the oldest of the couples who lived in the *zadruga* (Book of Births in Štitar 1821–1848). At least three or four more couples lived in the household where they bore and raised their children (for the family tree see Figure 3.1, page 337). Many of those children were stillborn or died young. In that time, the death toll was high, both among children and adults. Children often died from high fevers. Adult lives were often threatened by leprosy, tuberculosis, or deadly intestinal infections. Only two couples in Đuro's *zadruga* had sons who continued the lineage.

Đuro and Magdalena were parents to Jakob and Antun (a.k.a. Tuna), and Ivan and Apolonija were parents to Josip (a.k.a. Josa).

Teta Manda's stories begin with *dida* (grandpa) Jakob, *dida* Tuna, and *dida* Josa as children. *Dida* Tuna was her grandfather and the other two were her granduncles. When they grew up, the men married women from well standing *Šokac* (a native of Slavonia) families. Jakob married Kata from the Galović house, Tuna married Marta from the Lukačević house, and Josa married Magdalena (a.k.a. Magda) from the Benaković house. The three couples continued living in the same *zadruga*. *Dida* Jakob and *baba* Kata had several children but only Marko lived. *Dida* Tuna and *baba* Marta had only Mato. *Dida* Josa and *baba* Magda had two sons, but only Martin had children. There were daughters also, but they married and left the *zadruga* house. The three cousins, Marko, Mato, and Martin, grew into adulthood and married. Marko married Franca from the Vincetić house, Mato married Lucija (a.k.a. Luca) from the Prelić house, and Martin married Kata from the Miličić house. *Baba* Luca was a sister of my grandmother Manda. Franca bore eleven children, five of whom survived. Luca bore seven children, four of whom lived. Martin's wife Kata bore six children, and only Lovro lived to adulthood and married. He married once and when his first wife passed away before they had children, he married Franca Stanišić. Lovro died at the age of 45 without any children. His widow remained living in the *zadruga* house, with her son Andrija whose father was unknown.

The other two couples (and *baba* Franca Stanišić) and their children lived and worked in the *zadruga* and shared the *zadruga* property. Money, land, tools, household items, as well as animal stock and crops were considered joint property. The only exception was the property a woman brought as a dowry. Since Luca, Mato's wife, had

only sisters, she received a few hectares of land in the dowry from her father. This land and the yield from it were the property of Mato and Luca only, and not of the *zadruga*.

There was always plenty of food in the *zadruga* from grains and the chickens and pigs that were raised. However, money was scarce. Whenever the *zadruga* received a monetary payment for the sale of its produce, the money was divided between the couples who then used their portions to buy clothing for their children. Only rarely did the parents buy luxuries, such as sweets. Ana, Manda's cousin and my aunt, remembers a story from her mother's childhood when she and her cousins sold their *zadruga* maize to Polak, a Jewish trader, to buy sweets. Polak lived in the village and made a living by buying grain from the farmers and reselling it. He was honest and always paid them promptly in cash. Ana said:

Polak was in the village buying corn, so my mom, my aunt, Martin, and Mika [children of Mato and Luca and Marko and Franca], stole the *zadruga* maize and sold it to Polak. With the money he paid them, the children bought candy. That evening, when the elder family members returned from the fields and heard what the children had done, my grandmother Luca made my mom and my aunt give the candy back. However, *baba* Franca did not make Martin and Mika return the candy. She said instead: "Why should they return the candy when they can't buy any with *zadruga* money? Let them enjoy it at least this time" (Ana Dominković, personal communication: February 19, 2005).

Generally, the *zadruga* was able to meet most of its needs within the family and community. However, because of the Monarchy-imposed restrictions on trade in the *Vojna krajina*, the supply of goods that were coming from afar, such as candy, was limited. The Monarchy wished the border people to serve as soldiers and military laborers and not to be traders. Hence, they were only able to exchange goods within their own community or with the neighboring villages. Since Polak was a trader by

profession, in addition to buying produce from the farmers, he was selling them luxury goods.

The life in the *zadruga* was not only challenged by limited economic activities, but also by the extended family members' interpersonal relationships. Not only did *baba Franca* and *baba Luca* have different views about raising children, but they also did not get along in many other situations. *Baba Franca* often acted out of jealousy towards *baba Luca* and *dida Mata*, who had land as their personal property and thus money of their own. *Baba Franca* never had anything of her own, and she did not like that. As a result of these irreconcilable differences, the *zadruga* split in 1905 or 1906.

Before the split, the old *zadruga* house had been torn down and a new one was built on the same lot. The house was split into two parts by *anjfor* (a large gate) that led into the farmyard. Thus, when the *zadruga* decided to split, there were already two separate houses. Another house was bought elsewhere in the village for Marko and Franca who left the *zadruga* (for a legend of the new households as they appeared after the division see Figure 3.2, page 338). Manda remembers what *baba Luca* told her:

There were 36 members living in the *zadruga* when they decided to split up. That was too many. Their 40 or 50 hectares of land was divided into six parts, as well as everything else that the *zadruga* owned. There were two round wells, 80 cows, six pair of oxen, several horses, fields, and forests. The three couples drew up a document that divided the property into six equal pieces. They split into three households. Uncle Lovro's widow lived at *kbr.* 300, next door to the old *zadruga* house. Mato and Luca remained in the cooperative house, at the new *kbr.* 432. Marko and Franca moved to another location in the village, called Gorjanski Kraj, at *kbr.* 79 (personal communication: February 19, 2005).

Every adult had a right to a part of the *zadruga* property. Children were generally excluded in the division, but this was not always the case. There were some *zadruga* in the village that agreed to split the *zadruga* property among everyone, children and adults.

Children usually got a smaller part. Often, the division of *zadruga* property left some families unhappy because they received less land than the others. This especially occurred when children were included in the division. Families who had only one or two children received smaller portions of property when they left the *zadruga*.

After the first *zadruga* split, Mato and Luca and their three sons—Josip, Luka, and Ivo— remained in the original *zadruga* house. Luka married Marija from the Živković house. Two of their children died before they had Manda, my storyteller, in 1934. When Manda was one year old, the *zadruga* of Mato and Luca was split among their three sons. This time everybody, including the children, received shares of the items that belonged to the *zadruga*. Manda's parents, Luka and Marija, remained in the *zadruga* house. Luka's brother Josip moved away and eventually built a house that is now located at Matije Gupca 13. Another brother Ivan moved to a house at Savska 45.

Introduction

Tracing a few hundred years' history of a *zadruga* as the main unit of family life allows us to follow changes of the domestic developmental cycle. It also offers insights into various strategies of survival that smallholder families have employed to resist political turbulences or to adapt to the social and economic circumstances of the period from the Austro-Hungarian Monarchy until WWI. The above story gives a multigenerational history of a farming family whose number of members has changed several times. As many other Štitar smallholder families, the Dominković family underwent several life cycle changes, which were triggered by circumstances that occurred within the family, as well as within the society at large.

This chapter goes beyond the Dominković *zadruga* history and extends into the exploration of the historical ecology of Slavonia and the village Štitar. By describing the population, agriculture, and economy during the Byzantine, Ottoman, and Austro-Hungarian Empires, the chapter presents smallholder householders who have had long-term rights to land and who have pooled family labor to cultivate that land. Beyond recounted family histories from living members, I also relied on archival documents and historians' accounts, which aid in describing how Štitar smallholders adapted and remained viable.

The chapter begins providing answers to my first research question by exploring the main elements of rural landscape, livelihood, and agriculture, all of which were influenced by changes that each ruling regime made to customs, behaviors, and architecture.

The earliest historical ecology of Štitar

The Croatian region of Slavonia is a unique area in southeastern Europe due to its geopolitical location. With the exception of Croatians and Slovenians¹¹ who inhabited the northwestern corner of southeastern Europe and who had close ties to Western European developments, most of southeastern Europe's heritage comes from the Byzantine Empire. Slavonia, although located in Croatia which kept its ties with the west, was on the boundary of two cultures and religions—one eastern and Orthodox and the other western and Roman Catholic. Thus, Slavonia, together with the rest of

¹¹It must be made clear that Slovenia was the most northern republic in former Yugoslavia and presently is a country, while Slavonia is a region of Croatia.

southeastern Europe, was more influenced by Islamic culture. A cultural fault line that historically separated the Eastern European and Islamic civilizations runs through the territories of Transylvania, Banat, Vojvodina, Slavonia, Bosnia, Greece, and northern Albania. As a result, these regions frequently witnessed cultural eruptions between Eastern European Orthodox and Western European Catholic societies since the 9th century (Hupchick and Cox 2001:Map 5).

Similar to the greater region, Štitar experienced traits of Eastern and Western cultures at different times. Due to such turbulent history, up through the Ottoman Empire, Slavonia was sparsely populated and its villages were nothing more than hamlets of several scattered houses. The earliest written records of Štitar date from the 14th century. Following is a timeline of events that led to its establishment.

Table 3.1 - Chronology of events from Neolithic until the end of the Byzantine

5000 B.C.E.	The Settlements Bapska-Gradac, Jarmina-Borinci and Tenja were formed in eastern Slavonia.
4500–2500 B.C.E.	The settlement of Orašje in Bosnia was established.
600 C.E.	Byzantine Empire supplanted the Western Roman Empire.
910 C.E.	An independent Croatia was formed under King Tomislav.
10 th –12 th century	The necropolis of Daraž was established.
1102	Croatian nobility accepted the union with Hungary and proclaimed a Hungarian king as their own monarch.
14 th century	Štitar believed to be formed.
1506	Štitar was mentioned for the first time in the census.
14 th –15 th century	Fall of the Byzantine Empire. Replaced by the Ottoman Empire.

The earliest settlements¹² on the north side of the Sava River, what presently is Slavonia, occurred around 5000 B.C.E. On the other side of the river, in present-day Bosnia, the village of Orašje was believed to have developed as a settlement during the Copper Age (Chapman 2000:251).¹³ Alluvial ledges seem to have been the most desirable settlement locations.

The earliest mention of Štitar occurred somewhat later. Historians (Janjić et al 1988:28) state that its name was first found in the 1506 population census of the settlements around the citadel of Kostroman, which was owned by Count Gorjanski. The citadel was displaced during the Turkish raids, and only some of its settlements, like

¹²Bapska-Gradac, Jarmina-Borinci and Tenja (Chapman 2000:247–254).

¹³Also see Čečuk and Dorn 1968 and Goldstein 1999 for a description of various items from the Stone and Iron Ages found in other sites on the Sava River. For instance, the necropolis of Daraž was found about 3 kilometers south of the present village of Bošnjaci, at an 82-meter elevation, where the river created a fertile alluvial chernozem. The necropolis was estimated to have existed from the 10th to the 12th century.

Babina Greda, were rebuilt in the 17th century. As for Štitar, the census described it as a dual settlement. One, Sas Šćitar, was settled by the Saxon Germans¹⁴ and the other settlement, called Šćitar, was inhabited by local people (Pavičić 1973:63). It is believed that Sas Šćitar was established in the 14th century by Saxon settlers who were skilled steel craftsmen and farmers and who most likely migrated from central Bosnia. Among other iron items, the Saxons made shields, or *štit*, which is how the village got its name Štitar.

Štitar is located 8 kilometers west of Županja, where the river Sava flows slowly. The river has three large bends, and the village sits tucked into the second one. (For a map of the Štitar surrounding see Figure 2.3, page 45). Originally, it was located closer to the river, at an elevation of 87–88 meters above sea level (Pavičić 1973:62). However, it was often flooded. Wishing to secure their crops and belongings from frequent floods, in 1779 the villagers relocated further north, in the same river bend. With the relocation, the village gained 1,000 hectares of land near the river and the Rastovica Forest (Pavičić 1973:63).

Even though written records of the village's earliest days are sparse or completely missing, a profile of village life can be surmised from historical accounts about the political regimes under which Štitar lived. The rest of this chapter describes the main characteristics, such as population, land policy, agriculture, and economy, of the three major political regimes before WWI. The first political regime of interest is Byzantine Empire.

¹⁴Saxon Germans were brought into central Bosnia from Hungary to provide technical expertise in the mining industry. The Bosnian industry developed during count Stjepan Kotromanić who made Bosnia an important participant in the northwest Balkans' political affairs. He further developed Bosnia's mining industry and expanded trade with Dubrovnik (Hupchick and Cox, 2001:Map 16).

Byzantine Empire (600–1463)

The eastern half of the Roman Empire evolved into the Greek-speaking Byzantine Empire, whose worldview was expressed through highly mystical and ritualized Orthodox Christianity. During these times of constant foreign invasions, large areas of the Byzantine land were depopulated. The majority of inhabitants supported themselves by farming or herding. The more prosperous individuals were free farmers or shepherds who owned land for tending their flocks. Most other peasants typically cultivated the estates of the nobility or the church and were thus tied to the land under various conditions of bondage (Hupchick 2002, Ostrogorski 2002).

During the Byzantine, people lived in communities where the village held common forest, pasture, and water rights. In this way, pastures as village commons were available to anyone, and each village had a herdsman who was paid by the municipality (Hupchick 2002:113). Apart from the common property, municipalities had other land which they divided into parcels of private property. Therefore, fields, orchards, vineyards, and gardens were the private property of rural families. It is interesting to note that Štitar still has two communal pasture areas located along the river. It also has several herdsmen who are paid by the villagers for their service, but until the last war in the early 1990s, Štitar herdsmen were employed by the municipality.

The Byzantine Empire's borders were under constant military threat. Eventually, the Serbs, Croats, and Venetians, who had their own kings and were independent from the Byzantine Empire, steadily stripped away portions of the northwestern Balkans. The Byzantium allowed this to happen as it hoped that these peoples would become military personnel who could protect the lands from the barbarians (Hupchick 2002:63).

The Empire's political ideas that developed around methods of inhabiting the abandoned lands became a part of their internal reforms. The Emperor instituted rural reforms to keep the newly settled Slavic people on the land. During reforms, the land that once belonged to the large estates was split into small parcels that were available to anyone. The new rural reforms also created two types of rural settlers. Some cultivated land, often owned slaves, and were free to roam. Others became soldiers who also owned and cultivated their own land, but they had a military obligation to meet in exchange for the land. By law, the oldest son of a soldier-farmer inherited the father's military obligation while the remaining sons were able to form a free rural labor pool who were available to cultivate large amounts of land (Hupchick 2002, Ostrogorski 2002). As I show later, this policy of giving free land to people who inhabited the frontier was later applied by both the Ottoman Empire and the Austro-Hungarian Monarchy.

During the early Middle Ages, the basic unit of the Croatian social structure was a *zadruga*, or family cooperative. Historian Milenko Filipović (in Hammel et al 1982:3) defines *zadruga* as an extended family with kin sharing a household, as I present in this chapter's opening story. The *zadruga* was organized by a patriarch. For instance, Đuro Dominković was the oldest male in his household and thus was the patriarch and the household head. *Zadruga* members held in common the joint property of the *zadruga*, and in some cases members may have held private property. All means of production were shared completely and were available to any member of the house (Hammel et al 1982:5, Goldstein 1999:355).

Even after the Byzantine Empire ceased to exist, *zadruga* continued throughout the Ottoman Empire and even later into the Austro-Hungarian Monarchy, when they were

used as a source of military strength as well as units through which to enforce rules of behavior in the *Vojna krajina*. *Zadruga* survived through many centuries and outlived many political regimes not only because they served as powerful means of defense and survival for the local people, but also as a source of manpower and economic support to the political regimes. Their survival was often in the interest of the political regimes, as further discussed below.

Such was the life in eastern Slavonia under the Byzantine Empire. The rest of the present-day Croatia was never so immersed in eastern culture. In the early 10th century, King Tomislav created the first united Croatia which included Dalmatia, Croatia Proper, western Slavonia, and the greater part of Bosnia, but not eastern Slavonia. As the Kingdom of Croatia¹⁵ was situated near the line of division between the Eastern and the Western empires and was subjected to the influences of both Rome and Constantinople, it was the center of religious controversy. In the 11th century, Croatia accepted the Roman Catholic Church and its Latin liturgical language and thus it came more heavily under Western influence (Jelavich 1983).

As one might predict, the independence of the small Croatian kingdom was short-lived. During the early 11th century, King Zvonimir, who was married to a Hungarian princess, attempted to disempower the regional Croatian nobility. After his death, his queen did not gain the necessary support of that same nobility, and as a result, her brother, a Hungarian, intervened to protect her interests. Seeking protection, the Croatian nobility supported the Hungarian king who then claimed the Croatian crown in 1102.

¹⁵A memory of the first Croatian kingdom was revived several times through the history, as presented in chapter four. Once it was at the beginning of the WWII when the Independent State of Croatia was established, and again in the early 1990s when Croatia gained its independence from Yugoslavia.

Although the Croatian administration was separate from Hungary and the Croatian assembly of nobles had extensive rights of autonomy, only Croatia Proper retained its autonomous position. Eastern Slavonia remained under the rule of the Byzantine Empire (Jelavich 1983).

While Croatia was forming its union with Hungary, Byzantium continued to struggle for its survival. By 1355, it lost most of the Balkan territories and its holdings were reduced to a small portion of land around Constantinople. By 1463, the last territory of the Byzantine Empire fell to the Ottoman Empire.

Ottoman Empire (1463–1699)

This new kingdom, which united all the former Byzantine territories under one kingdom, spread from Mesopotamia to the Adriatic coast. The following table chronicles major events that took place during the rule of the Ottoman Empire, from 1463 until 1699 when the Austro-Hungarian army pushed the Ottomans out of Slavonia.

Table 3.2 - Chronology of events during Ottoman Empire, 1463–1699

1463	Ottomans defeated Bosnia, which left the Kingdom of Croatia open to their conquest.
1526	The Turkish sultan crossed the Drava River and conquered Osijek, in eastern Slavonia. The Turks defeated the Hungarian Catholic army in the battle of Mohacs. Slavonia, which had been ruled by the Hungarians, fell under the rule of the Hapsburg Monarchy.
1529	Ottomans attempted, but failed, in conquering Vienna.
1537	Ottomans conquered and burned Babina Greda, Štitar's neighboring village.
1535–1699	Štitar was under the Ottomans.
1538	The Hapsburgs established Croatian <i>Vojna krajina</i> in Croatia Proper.
1687–1691	Ottomans and Hungarians led wars over the Slavonian and Bosnian lands.
1683	Turks were defeated in Vienna, after which they started to withdraw.
1691	In the battle of Slankamen, Slavonia and Srijem were freed from the Turks.
1699	Hapsburgs signed a peace agreement with the Ottomans in Sremski Karlovci. Turks were finally pushed out of Slavonia.

In the 13th century, the Ottomans established a small state in northwestern Anatolia, thus becoming neighbors to the Byzantine Empire. As followers of Islam, Ottoman Turks believed in the concept of “holy war,” followed by many Muslim soldiers who considered it their sacred duty to expand Islam by force. Coupled with their interest in waging a holy war, the Ottoman Empire was interested in acquiring Byzantine land. Great numbers of Islamic peasants and townspeople accepted this concept of land acquisition, seeking to acquire new homes and lives in the rich lands captured from Byzantine (Hupchick 2002:120).

In their conquest of lands, the Ottomans defeated Bosnia in 1463, which left the Kingdom of Croatia open to their conquest. However, events that followed elsewhere

decided the fate of the Croatian kingdom. In 1521, the Turkish sultan Suleyman captured Belgrade, which was a key fortress that guarded Hungary's southern border (see Figure 3.3). The Hungarians were defeated in the Battle of Mohacs in 1526. The Hungarian capital Buda was also conquered. However, instead of annexing Hungary, the sultan decided to make it a state of his empire. With Hungary defeated, the Hapsburgs in Austria felt threatened. In 1527, the Hapsburg forces captured Buda, but the sultan recaptured it a few years later. The Ottoman-Hapsburg fighting continued until 1533 when Suleyman was forced to sign a treaty with the Hapsburgs. By the mid-16th century, the Ottoman border extended as far north as Royal Hungary and it crossed through the territory of Croatia, dividing it in two.

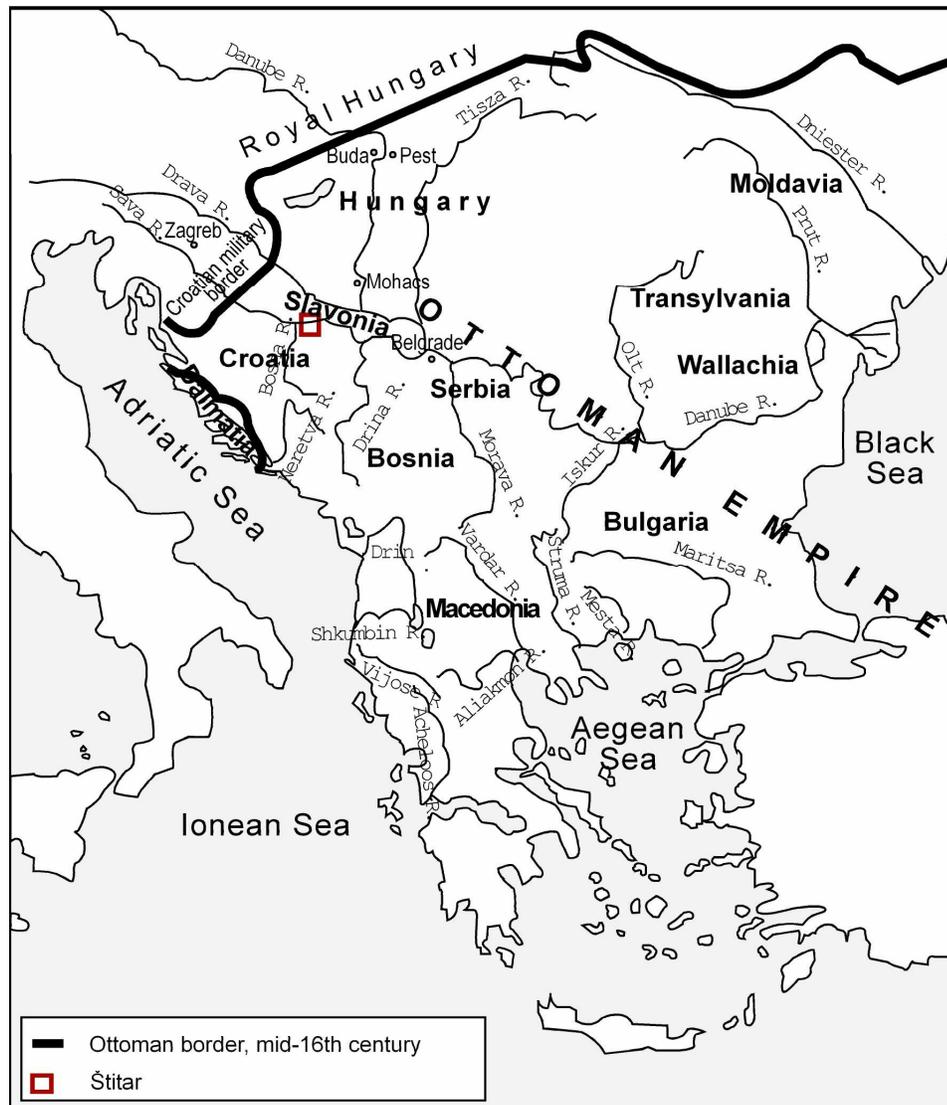


Figure 3.3 – Territory under the Ottoman rule in the 16th century

North of the border was Croatia Proper that supported a Hungarian king. However, after Hungary's defeat in the Battle of Mohacs, the Croat nobles left the Hungarian king to support the Hapsburg candidate on the condition that he protects Croatia Proper from the Ottomans. The Hapsburgs established *Vojnu krajinu* in Croatia Proper in 1538. (Later, a similar military frontier was established in Slavonia as I discuss below). The establishment of the Croatian military frontier was a result of repeated Ottoman

incursions into Royal Hungary from Bosnia. The frontier was placed directly under the authority of the Hapsburg military headquarters in Vienna. The first continuous chain of *čardaci* (wooden guard posts on stilts) was built along the border of the Ottoman Empire (Buczynski 1997:10–11). However, the length of the border was a problem. Supplying and maintaining the army incurred costs too high for the Croatian nobility to pay. As a form of payment, the nobles often relinquished their forts and lands to the Hapsburg ruler.

While the Croatian lands north of the border remained bound to the Hapsburgs in Vienna, the land south of the border—Slavonia—was occupied by the Ottomans. One source reveals that in 1537, the Ottomans conquered Croatian holdings in Babina Greda, a village located three kilometers west of Štitar, and burned them to the ground (Mažuran 1998:82). This began the era of Štitar ruled by the Ottomans, which lasted until 1699 (Janjić et al 1988:25).

The following sub-sections provide main characteristics of the Ottoman Empire and describe their effects on the present village environment and people's behaviors. These characteristics include population, land ownership, and agriculture.

Population

Amazingly enough, the Ottoman Empire kept population data on its regions, despite turbulent times and frequent borders changes. However, population data were scattered and often excluded or minimized the number of women and children. Also, the further the regions were from Istanbul the less reliable the census data were. Despite this, the Ottoman census data are still seen as more precise than the censuses of the later formed nation-states, which were known to have falsified census information to suit their

individual political beliefs and territorial pretensions. The Ottoman's data is thought to be more precise because they did not divide people on a national basis, but rather on a religious one (Hupchick and Cox 2001, McCarthy 2002). All the people were divided into *millets* or nations, but with a very different meaning from the Western concept of nation (Hupchick and Cox 2001:Map 22). *Millets* were groups of people of the same religion. The majority of the populations in the *millets* were Muslims, followed by Orthodox Bulgarians, Eastern European Orthodox Serbs, and lastly Catholics.

As a general rule, Ottoman lands were sparsely inhabited due to topographical limitations as well as political turmoil that deterred people from establishing settlements.¹⁶ To indicate how sparsely inhabited were these lands, a source reveals that in the area surrounding Babina Greda, prior to Ottoman rule, there were 12 small settlements (Mijić 2002). Only four of these settlements survived the Ottoman period, Babina Greda and Štitar among them. Babina Greda was burned in 1537 but was later rebuilt. Approximately four hundred households were known to exist in these four settlements in 1680 (Mijić 2002:31).

The lives of villagers in the Bosnian and the Croatian Posavina¹⁷ were closely intermingled. For instance, both of these villages located in Croatian Posavina belonged to the parishes in the Bosnian Posavina. Also, according to the church archival research of Father Stanko Mijić, Štitar inhabitants cultivated land not only around their own

¹⁶A tax document from the early 16th century shows only 49 households in Bosanska Posavina that were obligated to pay taxes (Mijić 2002:15). By the late 16th century, new villages were established by people who fled from the north side of the Sava River, escaping the rule of the Hapsburgs and the Croatian nobility. For instance, Tolisa and Tvrdkovište (later known as Utorkovište) were new villages formed in Bosnia. According to Ottoman records, 38 more settlements were formed because of these flights (Mijić 2002:16).

¹⁷Posavina is an area along the Sava River. An area north of the river is known as Croatian Posavina, and south of the river is Bosnian Posavina.

village in the Croatian Posavina, but also around the village of Utorkovište in the Bosnian Posavina, because of its drier soils (Mijić 2002:64). Mijić provides a list of names of household heads who owned land in Utorkovište and resided in Štitar (see Table 3.3, page 339).

The period between 1687 and 1691 was marked by the Turkish-Hungarian wars over these territories. In migrations that followed the end of the wars and the Turkish defeat, many people moved from Bosnia to the other side of the Sava River into Slavonian lands. As a result of multiple migrations from one side of the river to the other, the same last names are found on both sides of the river, which makes it nearly impossible to know who is local to the Slavonian or Bosnian lands (Pavičić 1994:265) (for the list of last names see Tables 3.4 and 3.5, page 340–341).

Land ownership and agriculture

All conquered territories were considered imperial lands and to be at the sultan's disposal. The land became part of his private imperial property to be dispersed among family, friends, and the highest officials. The sultan gave his land (or Turkish *fief*) as an award to his warriors and commanders for their military service, which made them *fief holders*. The *fief holders* leased out their land to the Ottoman peasants who cultivated it and were thus obliged to make timely tax payments. The peasants were also expected to meet certain obligations as payment for cultivating the land and in return for being allowed their personal freedom. The *fief holder*, on the other hand, was obliged to facilitate the uninterrupted cultivation and habitation of the land to guarantee a stable income (Hupchick 2002). Due to this arrangement, the peasants were not left landless. This semi-feudal system was better than the deplorable conditions under which many

peasants lived during later periods in Western Europe. For that reason, many Christian peasants in-migrated to the Ottoman Balkans in the 15th and 16th centuries (Hupchick 2002).

Apart from Muslim peasants who lived near the *fiefs* they cultivated, the majority of Balkan Christians lived in the countryside in small villages. Their personal properties most often consisted of scattered field plots that supported an extended family or *zadruga*. Since the Balkan Peninsula was covered with vast forests and great stretches of uncultivated land, the existence of more than adequate pastureland allowed animal husbandry (Jelavich 1983:58). Crop growing was introduced later, as I reveal in later sections.

The Empire's end

As the Ottoman Empire started to decline, essential elements in the political order were subject to transformation. The Empire urgently needed cash for military purposes to pay salaries and to purchase expensive arms. In order to be able to fight against the trained infantry of the Hapsburgs that were armed with cannons, the Turkish janissaries¹⁸ were also equipped with new weapons that were more expensive. The increased need for cash brought about rising tax obligations for peasants. By the end of the 17th century, tax rates reached nearly 80 percent (Hupchick 2002:166). With such high tax obligations, peasant tenants and villagers resorted to borrowing cash from local landowners, using their own land as collateral. When they defaulted, they forfeited their land and found themselves indentured to lenders' estates, which were often transformed into military

¹⁸Janissaries were the "new" soldiers of the Ottoman Empire. They were formed from Christian youths that were kidnapped from their mothers and prisoners of war.

fiefdoms. Thus, the semi-feudal system that was once of benefit to its inhabitants, turned into a system with crushing taxation and economic exploitation. People began to wish for escape and many indeed migrated to the northlands of Hungary and Czechoslovakia.

In addition to the internal problems of the Empire, events in the outside world posed challenges to the Ottoman state. Toward the end of the 17th century, under the influences of Western European technological developments and global exploration, change began to inflict consistent military defeats and economic hardships on the Ottomans. Even though the Empire never opened its doors to any of the western world's transformative forces or modernization, the early Industrial Revolution had an impact on the Empire. It spelled ultimate economic disaster for the Ottoman Empire's self-sufficient economy. Machine technology in the Empire was rudimentary and had remained unchanged for centuries with most labor being performed manually. However, the population gradually realized how outmoded its practices were, allowing cheap factory-made goods to displace native handcrafted items, which resulted in unemployment, economic dependency, and commercial deterioration (Hupchick 2002).

The Empire was also losing military ground. In 1683, the Imperial Army advanced to Vienna, but this time it was defeated. In 1687, the Hapsburg Catholic army conquered Osijek and other important forts in Slavonia, after which the Ottoman forces began to leave Slavonia. The Ottomans returned to these lands in 1690, but only to rob property owners, burn villages, and enslave the local people. Slavonia and Srijem were freed from the Ottomans in 1691, in the battle at Slankamen (Šalić 1985:57). In 1699, the Ottoman Empire signed a peace agreement in Sremski Karlovci by which they ceded territory to the Christian powers. Subsequently, Austria annexed many extensive and valuable

territories in Croatia and Slavonia. As the Ottomans withdrew from Slavonia, much of the Muslim population left as well, although those who remained generally accepted Catholicism.

Austro-Hungarian Monarchy (1699–1918)

The following account chronicles the most significant historical events in Slavonia and Štitar from the period between the Ottomans leaving Slavonia and the WWI.

Table 3.6 – Chronology of events during Austro-Hungarian Monarchy, 1699–1918

1699	The Hapsburgs formed the Slavonian <i>Vojna krajina</i> .
1717	A Catholic parish was established in Županja. Bošnjaci, Bučje, Selište, and Štitar fell under this parish.
1718	After signing another peace agreement in Požarevac, the Hapsburg-Turkish border was moved to the south side of the Sava, at the foothills of the Bosnian mountains. This remained until 1736, when Austria again lost this territory and the border was moved back to the Sava River as a natural border.
1764	The first levy was built on the Sava, from Ruščice to Orljaka.
1779	Štitar relocated to its present location.
1867	The Hapsburgs signed a power-sharing compromise with Hungary and handed Croatia over to its control, but kept Slavonia.
1873	Slavonian <i>Vojna krajina</i> was abolished, and the Brod regiment divided into districts.
1878	Based on a decision of the Vienna congress, Bosnia and Herzegovina were occupied. The Sava River broke through the levy and flooded fields as far as Vinkovci and Đakovo.
1881	Another huge Sava flood reached as far as Kukujevci in Srijem.
1883	Ten years after the Military frontier was abolished, Slavonia joined with Civil Croatia.
1908	Austria annexed Bosnia and Herzegovina.

At the end of the 17th century, after acquiring Slavonia from the Turks, the Hapsburgs created a military frontier region that was similar to the Croatian *Vojna krajina* (see Figure 3.4). The Slavonian *Vojna krajina*¹⁹ incorporated 84,988 square kilometers of land. The remaining territory of Slavonia between the Drava and the

¹⁹The border towards Civil Croatia followed these landmarks: Ilača, Vinkovci, Đakovo, Stari Perkovci, Čajkovci, Slavonski Brod, Lužani, Pričac, Živike, Sava, Račinovci, Strošinci, Lipovac, Nijemci and Ilača (Knežević 1999:2).

Danube, a total area of 10,000 square kilometers, formed Provincial²⁰ (Mažuran 1993:36). The Slavonian frontier territory incorporated 90 villages and had a population of 72,337 at the end of the 18th century (Buczynski et al 1999:29). As a defense system along the Sava River, the Hapsburgs built wooden forts or *čardaci*, using local citizens as guards.

²⁰The following administrative division of Croatia and Slavonia was in place: (1) Croatia, made of Civil Croatia and Croatian *Vojna krajina*; (2) Slavonia, made of Provincial and Slavonian *Vojna krajina*; (3) Istria; and (4) Dalmatia.



Figure 3.4 – Boundaries of the Military Frontier areas in the 17th century

The Slavonian *Vojna krajina* was legally divided in true military fashion. The regiments were divided into battalions, and each battalion into companies or villages. Štitar was a part of the sixth company, together with Babina Greda and Gundunci, which belonged to the seventh regiment—Brod.²¹ Historian Alexander Buczynski (1999) provided a detailed description of the villages in the Slavonian *Vojna krajina*, as

²¹The Brod regiment was divided into 12 companies: Podvinje, Trnjani, Garčin, Andrijevc, Sikirevc, Babina Greda, Ivankovo, Cerna, Vinkovci, Nijemci, Županja, and Drenovci.

chronicled by the Monarchy administrators who were mapping the territories. (For a detailed description of Štitar at the end of the 18th century see Appendix A, page 342). The headquarters of the Brod regiment was in Vinkovci, where the colonel in charge of the regiment was stationed. Colonels commanded all aspects of local lives and were responsible for the protection and security of the borderland near the Turkish Empire. Through these local administrators, the Monarchy kept control of its territory.

Administrative control of the border was divided between the military headquarters in Vienna which was responsible for military issues and Tsar Chamber which dealt with the economic side of border life (Potrebica 1996:31). One Austrian observer noted that “the idea of *Vojna krajina* soon proved to be exceptionally fruitful” (Buczynski et al 1999:3) for a number of reasons. Not only was the frontier a defense from the Turks, but the emperor benefited from an abundant source of skilled soldiers. It also provided a strong military presence against the often-disobedient Hungarian and Croatian nobility. By the end of the 18th century, there were more than 60 thousand soldiers at the emperor's disposal. Remarkably, the *Vojna krajina* was “the largest and cheapest military organization ever formed” (Buczynski et al 1999:3).

Similar to how it happened during the Byzantine and Ottoman Empires, the Hapsburgs created military forces by demanding that the people who lived and settled in the frontier become military soldiers, or *krajišnici*, in exchange for land grants. Since the local population was sparse, the Hapsburgs re-settled any available and willing people into these military hinterland colonies. The colonists represented a variety of ethnicities—Croats, Germans, Serbs, Hungarians, Czechs, Slovaks, Italians, and others. The most numerous were Orthodox Serb refugees who fled the Ottoman Empire in the late 17th

century. Thus, large enclaves of Serb émigrés settled in the newly designated Slavonian and Vojvodinan border zones (Hupchick and Cox 2001, Buczynski et al 1999). There were also people who settled the frontier voluntarily. These were mostly Catholics who out-migrated from Bosnia and settled north of the Sava River, predominantly in Slavonia, as Muslims were leaving Croatia and Slavonia and moving into territories ruled by the Ottomans (Jelavich 1983:89). All these settlers were awarded cultivatable land as an inherited right in return for military service. The awarded land, called military *leno*, represented two-thirds of the *krajišnici* military service salary. The *leno* was as large as 7.5 hectares²² and in some cases even 11.5 hectares (Knežević 1990:6).

The majority of *krajišnici* were farmers who, in addition to having a military obligation to fight for the causes of the Monarchy, had a labor obligation, or *carska rabota*. They were expected to build and maintain the military complexes in Brod and Vinkovci. The largest part of their obligation was committed to building a large and modern military fort in Brod, which today is a museum. Other obligations included building and maintaining public roads and bridges, as well as building levees along the Sava River. Brick was sometimes used as a building material, mostly for the regimental military buildings, hospitals, pharmacies, churches, and schools, but wood was the primary building material.

A direct result of supplying large amounts of wood for military buildings is a significant loss of forest areas in the Slavonian *Vojna krajina* (Hupchick 2002, Tkalac 1994, Pavičić 1994). For instance, the whole forest of Rastovica (for the location of the

²²The common unit of measure for land area used then and today is a jutro (1 jutro = 0.6 hectares). The size of 1 jutro of a field became an issue for the Monarchy. It was decided that it is 180 steps long and 40 steps wide. Hungary and Austria also measured land by the same standards (Mažuran 1993).

forest see Figure 2.3, page 45), located 50 kilometers from Brod, was cut and transported down the Sava River to Brod (Matanović 2002:193–202).

After I summarized the events that resulted with the formation of *Vojna krajina*, the following sub-sections describe the main social and economic structures that the Austro-Hungarian Monarchy created. The remnants of many of these structures are most visible in the village architecture, and people's behaviors and customs. In particular, I explore the population of Štitar; the role that forests, *zadruga*, and field houses played in the life of the frontier people; their agricultural practices; the development of the village architecture and trade.

The population of Štitar

When acquiring new territories, the Hapsburg military and tax headquarters ordered a census to be taken. The census was necessary to gather information regarding the settlers on Hapsburg land. All families and individuals, along with their property, were registered.²³ The last census completed in 1698 surveyed all the villages and towns of Slavonia. According to that census, the total number of households recorded in Slavonia was 7,200. Assuming that each household had an average of seven members, the total population of Slavonia was between 50 and 52 thousand people (Mažuran 1993:31). With four people per square kilometer, at the end of the 17th century, Slavonia was sparsely inhabited.

Historical accounts of Štitar's population of that time were scarce, and authors rarely state sources. Pavičić (1973:265) states that in 1696 Štitar had ten original settler

²³Unfortunately, this census was sporadically completed, and some Slavonian villages were not counted, or the census was destroyed at some point. Štitar's census is among those missing.

families, and each had several houses (see Table 3.5, page 341). During this period, the Rastovica settlement joined Štitar, incorporating several families into the village. Pavičić further states that over a dozen old Croatian families moved into this territory from Bosnia, mostly from the village of Utorkovište. This together with local growth increased the number of houses in Štitar to 46 in 1719. This number further increased to 68 houses in 1764.

Forestry

In addition to being awarded land, the *krajišnici* enjoyed the so called *Pravoužitničko pravo* which gave them a limited number of rights, including access to free building material and a firewood from the forest, a right to graze pigs on forest acorns, and access to the common pasture. Local people had always used these natural resources, but the Monarchy turned it into law, as it has done with numerous other pre-existing practices and behaviors. The *Pravoužitničko pravo* was inherited with each *zadruga* and was passed to each successive generation. If the *zadruga* divided, the right was also divided into parcels for each newly formed family. If the *zadruga* died off, the right was erased, but could be restored again to someone who inherited or bought the property (Marko Landeka, personal communication: October 23, 2004).

At first, the *krajišnici* had the right to an indefinite amount of wood from the forests. However, historian Marko Landeka told me that there were individuals who abused this right by taking more wood than they needed and selling it for cash (personal communication: October 23, 2004). Rather than abusing the right, I believe people continued to do as they had done before the law—cutting trees for sale as an additional household income source. It took some time before people began to obey the law.

Archival documents written after 1912 show that the *Pravo* eventually limited how much wood a person could carry out of the forest. Household members were allowed to take only as much "firewood and building material as was needed for the regular maintenance of a house and not for building a new one" (Unknown author, N.d.). This right, even though it grew more restricted over the years, remained in effect until after WWII.

Ultimately, it was not the local people who depleted their forests. It was actually the French and the German traders who began noticing Croatian red oak after a wood exhibition held in Vienna in 1857. Before that, only a small amount of raw wood was exported from Croatia. Within ten years, these foreign traders were exporting more than 20 million oak boards per year (Sabadi 2000:222). This coupled with supplying wood for military buildings resulted in shrinking of the Slavonian forests.

Along with the forest exploitation came forest management rules. The first forest management regulations in the Monarchy were instituted in 1769 during the reign of Maria Theresa, and they defined timber rules for the main tree types. The Monarchy also legislated that the annual period for tree cutting should be from November 11 to March 19. The ordinances were revised several times to meet the needs of advanced forestry which then further limited timber harvests (Klepac 2000:183, Rauš 1979:63–77).

Even today, many of the Austro-Hungarian forest management practices are still employed by the Croatian Forest Service. The Forestry Service extended the period for forests maintenance and timber cutting from September 15 until April 15. During this period, local people may collect firewood from the leftover materials that are left behind by the forest management crews. The Service also manages private forests, in which

individuals are allowed to cut brushes and smaller trees, but they must receive a Forestry Service permit to cut larger trees.

Agriculture

Before the late 17th century, Slavonia inhabitants relied primarily on animal husbandry, as only one percent of the forestland was converted into pastures or cultivable land. The remaining land was swamp and wetlands (Mažuran 1993:34). Villages were small, but the areas around the villages were large and suitable for grazing. When the Hapsburgs began settling people in the frontier, the population increased and large tracts of grazing land became scarce. Soon people realized that animal husbandry would not be sufficient to support them.

Crops were introduced "as an additional agricultural activity that would feed more people on a smaller area" (Knežević 1990:10). Early on, agricultural yields were low as diseases and insects took their toll. Oxen were used to pull wooden ploughs, and they were the primary method for field cultivation. After growing mainly small grains and maize, the *krajišnici* introduced tobacco toward the end of the 18th century.

As demand for agricultural land increased due to the growth of large *zadruga* families, the Monarchy allowed more swamps to be drained. With land becoming available in different areas of the village *atar*, *zadruga* began cultivating fields scattered throughout the *atar* (Knežević 1990:11), which contributed to parcelization of a single landholding. It was common for the largest *zadruga*, like that of Đuro Dominković, to own few dozens of hectares in several locations.

Although *zadruga* included many members, the families were often short of labor. Since men had military and civil obligations, they worked less in the fields and spent more time as guards and warring soldiers while elderly, women, and children worked in the fields. In addition, the most common way to meet labor demand was through labor exchange parties. If one family was not able to finish their farm activities on time, the company colonel ordered others to help the family members (Tkalac 1994), although people would have provided the help on their own. It is interesting to note that although the Monarchy had rules that directed many behaviors and customs, many of those in fact have been previously established and were in practice by the people. The Monarchy was known for notoriously creating rules of behavior and controlling all aspects of the *krajišnici* life. Labor exchange was one of such rule that did not need to be enforced. More than a century after the Monarchy dissolved, I found that labor exchanges were still common among many smallholders in Štitar.

Another inheritance from the Monarchy is the Registries of Land Ownership. When the Monarchy parceled and awarded land to the *krajišnici*, it became necessary to match land parcels to their owners (Mažuran 1993:36). Therefore, the Monarchy published cadastre maps depicting plots which were numbered and recorded by family name, as well as established Registries of Land Ownership, in which the Monarchy recorded all land sales (Manda Bušić, personal communication: April 2004). Archival research of these maps in the Cadastre Office in Županja shows the re-distribution of village plots as *zadruga* divided land among newly formed families. For instance, a *zadruga* owned a cadastre plot²⁴ number 254. During the split of the *zadruga* in three new families, this

²⁴Cadastre plots and fields are not always the same. A field is often larger than a cadastre plot.

cadastre plot was split in three parts. It was then registered as 254/1, 254/2, and 254/3 in the registry maps. Today, a farmer may own 10 fields, which may be comprised of 15 to 20 plots. These original maps created by Austro-Hungary Monarchy were still in circulation in the Županja Cadastre Office until recently, when the land ownership registry system was computerized.

Family cooperatives or zadruga

The existence of *zadruga* can be traced to ancient Greece (Pavličević 1990).²⁵ Maintaining the existence of *zadruga* was important to the military headquarters in Vienna as it was the only institution that sustained the life of the *krajišnici*. Only an institution that had many able-bodied members could sustain itself and meet the needs of the Monarchy. As noted in this chapter's opening story, the *zadruga* of Đuro Dominković had four couples and their children, which supplied the Monarchy with at least four soldiers and supplied the family with sufficient labor to cultivate the land.

The head of the household, or *gazda*, was usually the oldest man in the *zadruga*. He organized farming activities and assigned work to the *zadruga* members. As such, he was exempt from military obligations and was directly responsible to the colonel who oversaw his *zadruga*. His wife, or *gazdarica*, was responsible for assigning all the

²⁵Baltić (in Pavličević 1990) divided the family cooperatives into three phases of existence. The first phase was a patriarchal society in which kinsmen supported themselves by raising animals, fishing, and hunting. People lived in larger groups in order to protect themselves from enemies coming from neighboring states. People hid in the mountains to escape from the ravaging Turks while continuing to raise animals. The second phase occurred after the Ottoman occupiers left, and when people started returning from the hills and cultivating fields that belonged to feudal lords. Lives carved out by cultivating someone else's land were poor, and extended families had to stay together in order to meet tax obligations that were imposed by the lords. Small monetary needs were met by selling animals and plums and by making handcrafted items. Raising animals was the basic way of earning a living. The animals grazed on their own, in pastures or in the forest. The third phase began in 1848 when the villagers became landowners. A sense of ownership and the possibility for family land division brought a different mindset. Instead of prospering, the families chose to divide their land and hold their own property.

household activities to other household women and children. (I return to this point in chapter five and discuss the importance of this division of roles for the continuation of the family line).

Members of the *zadruga* lived in a large house that often had three or more windows facing the street (see Figure 3.6). The house was L-shaped, with one large room that faced the street. This room served as a kitchen and a bedroom for the head of the household, his wife, and all of the young children. Young couples slept in *kučari*, or sleeping quarters, that were located at the house's rear which looked into the yard. *Kučari* exited into a *ganjk*, a kind of an open porch with tall, arched openings. The oldest houses in Štitar still have these architectural elements. The only difference today is that the large front room is divided into smaller bedrooms and the *kučari* are used for storage of food and farm tools.

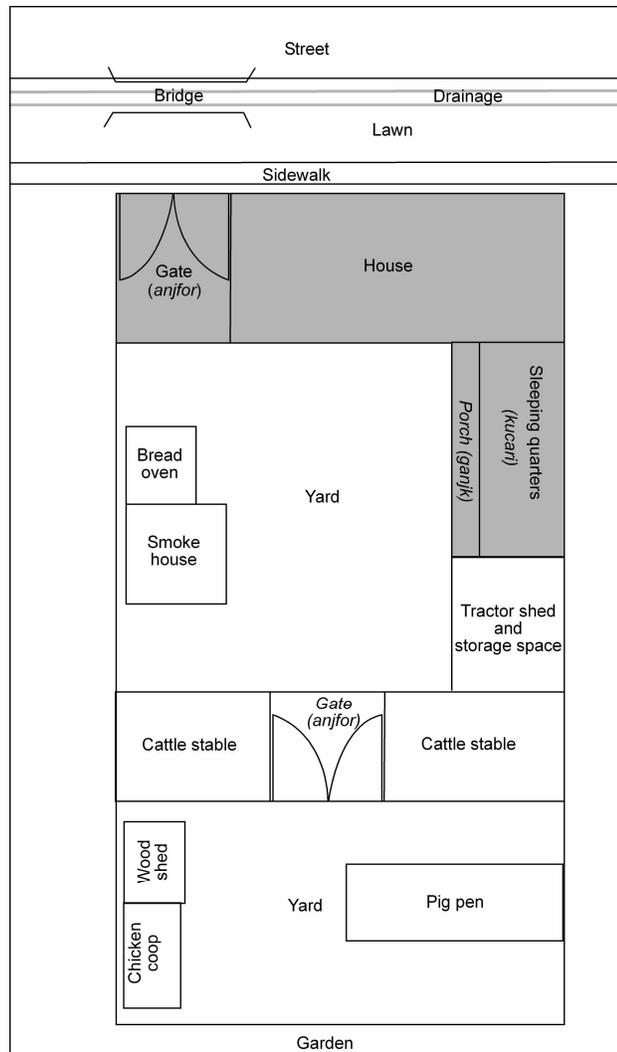


Figure 3.5 – Picture of a typical house and yard

Although they relied on farming to provide food for the family, the *zadruga* rarely relied on a single trade (Hammel et al 1982:6). Rather, its members engaged in several kinds of activities in order to be self-sufficient in the rural economy. Cutting firewood for sale was one of the additional activities. By diversifying household income, Štitar farmers have always resembled Netting's smallholders who also engaged in income producing activities away from their farms. Netting points out that

the ancient peasant subsistence system had always coexisted with and mutually supported households whose income came in part from off-farm employment as

everything from mercenary soldiers to chambermaids. The security of diversified and intensive farming maintained an astonishing proportion of village family lines, yet necessary cash and manufactured goods always came from outside the community (1993:10).

Similarly, the diversified farmers of *Vojna krajina* served as soldiers in exchange for land and some financial compensation. Some farmers were skilled furriers, carpenters, or tailors, but due to the extent of their obligations, craft making was rare among the *krajišnici*. They made most of what they needed, and the goods they were not able to produce, like some clothes and shoes, they purchased within their community or at one of the neighboring villages' fairs, as described in the story that opens this chapter. Craft making was performed mostly by foreigners who did not own land and did not have to meet military obligations.

The Monarchy was first to enact laws that required *krajišnici* to live in *zadruga*, which remained in effect until 1871. However, much earlier than that the *zadruga* members began to express negative feelings about cooperative living. At first, the military headquarters did not allow the division of the *zadruga*, since such aspirations were contradictory to the military needs of the Monarchy. Some people even feared that the disappearance of the *zadruga* "would bring the continued existence of the frontier into question" (Buczynski 1997: 88). However, despite the efforts of the military, *zadruga* were disbanding, at first secretly, until the Monarchy abolished the law that banned it.

Why did zadruga disintegrate?

Researchers who studied the reasons behind the disintegration of the *zadruga* suggest a number of external factors that brought changes to the farming life (Bičanić 1981, Hammel et al 1982). With the introduction of capitalism in the second half of the 19th

century, the subsistence-based economy was rapidly transformed into a market economy. Farmers started to produce to sell, which allowed an in-flow of cash. With the money farmers earned from produce sales, the households were able to purchase cheap goods that were not produced within the farming household. At the same time, transportation was improved by railroads that connected more distant areas of the country and energy-intensive agricultural mechanization pushed out more labor-intensive farming practices completed by horse plows and human hands. This resulted in *zadruga* family needing fewer working hands. Opportunities for work off-farm existed and the possibility of earning wages in industry increased mobility for rural inhabitants. All these combined led to cooperative living and ownership of land becoming a burden for those *zadruga* members who wished to out-migrate from the Slavonian villages in search of work.

Apart from these external changes of the market and local economy, Nancy Folber (in Netting 1993) offers an interesting explanation for family dissolutions; one suggesting that individual self-interest prevails over altruism.

Economic self-interest seems to penetrate even the most intimate domains of family life. This does not mean that household decisions can be explained in purely economic terms. It merely suggests that the boundaries between self-interest and altruism do not necessarily coincide with the threshold of the home (Folber, in Netting 1993:64-65).

It could be said that instead of continuing to depend on each other and produce food together on *zadruga* common land, individual members felt a need to own their own land and earn their own income. It was also likely that patriarchal authority and collective ownership stood in the way of privacy and individual initiative in the search for better economic options. Due to such self-interested goals, more members worked outside of *zadruga* and earned money. Those who made more money did not see it as possible to

continue living in a formation where all the goods are shared and where their private property invokes feelings of jealousy. It was possible that their self-interests of providing more for their family than what they had in the *zadruga* prevailed over the altruistic behaviors within the *zadruga*, which resulted in the division. However, if self-interest was the leading force that split the *zadruga* of Đure Dominković the first time, then Luca and Mato, who had land of their own, would have been expected to have left the *zadruga*. However, they remained, and Marko and Franca left with their share of the *zadruga* property.

Diverging from Folber's explanation, Netting (1993:96) offers a suggestion that I found to better explain the splitting of the *zadruga*. Providing examples of the smallholders in Japan, Netting claims that "multiple families, whose labor forces had grown too large for their land, divided landholdings unequally between the main family and collateral branch families" (1993:96). Similarly, I suggest that under the existing economic circumstances, Štitar *zadruga* chose to split at a certain point in the family developmental cycle at which family labor supply exceeded the demand. They simply reached an evolutionary moment at which available labor exceeded the landholdings and found it necessary to split into smaller families. The split resulted in a change in the composition of the family. For instance, when the *zadruga* of Đure Dominković numbered 30 plus people living in one house and cultivating up to 50 hectares of land and the military and labor obligations ceased, their available labor source was too large for the amount of cultivable land. At that particular moment, the rational economic decision was that the *zadruga* should divide its land among its members.

The newly formed families managed their own land and continued exchanging labor with the rest of the former *zadruga* members. As Netting further states,

this process limited the size and responsibilities of the main family, reduced an unwieldy labor force to manageable size, fixed single-heir inheritance within the co-resident stem farm, and increased productivity of the remaining household members. The growth of commerce and a national market enabled non-inheriting offspring to migrate to the cities or take side jobs and perform agricultural wage labor in rural areas (1993:96–7).

Instead of several couples living together, newly formed Štitar families often continued living as an extended family, which consisted of a parental unit and one son with his family and any unmarried children. No more than one son ever lived in the parental household after the division. Other sons found new homes, as did the three sons of Mato and Luca after the second split, and each continued farming or sought a non-agricultural career.

Therefore, when examining the reasons that brought *zadruga* to split, rather than singling out external circumstances or changes within a family, I suggest that it is a combination of both. The evidence for my claim is the fact that *zadruga* often split more than once at different stages of the family life cycle. Most likely, the division would not have occurred without social and economic changes that allowed individuals to find employment outside of the farm, or to continue farming their smaller landholdings along with other income-making activities. I suggest that dividing the *zadruga* was a method of adaptation of family farmers to the changing family composition, as well as the changing social and market circumstances that took place in the second half of the 19th century.

Village architecture

I described the organization of a farmyard and I only briefly mentioned the Monarchy's effort to force people to move from living near their fields to village compounds. I will now discuss how the creation of villages and their respective architecture as is found today were significant developments that transformed spatial and social relations.

Before the Hapsburg Monarchy, settlements resembled small hamlets scattered in forest clearings, fields, and hills. People lived relatively far from each other and they had plenty of surrounding vacant land. However, the fact that Hapsburg soldiers lived so far into the fields and forests made it difficult for the military headquarters to control its army. Therefore, in the 18th century, Queen Maria Theresa started a process of *ušoravanja*, or lining up of residences in the Slavonian Military Frontier villages. The process saw the construction of homes along streets with one right next to the other. Each village had a main street, which was usually the longest, and side streets that intersected at right or near-right angles.

The Monarchy also created rules by which the *krajišinci* must abide when building their houses. For instance, in Babina Greda the house lots were to be between 1,500 and 3,000 square meters (0.37 to 0.74 acres). Each home was located 23 to 26 meters (75.4 to 85.3 feet) from the street, so that a drainage canal could be built next to the street (see Figure 3.5, page 86). Each house was to have a common green area in front, a characteristic that can still be seen today. In these front green areas, people later built wooden benches where they gathered in the evenings to chat with neighbors and passers-by. The houses were built to face the street. All other farming buildings were built in the

back yard. No house was built without the company colonel's approval. The Monarchy also instructed *krajišnici* to dig a water collection ditch in front of the house and a bridge as an entry from the street and into the yard. The *krajišnici* were obligated to keep the ditches clean to avoid being fined. It took the Monarchy 20 years to create the *ušorena* villages, which are characteristic of the present day Slavonia (Knežević 1990, Tkalac 1994, Buczynski et al 1999, Kadić 1985). All these architectural elements are still present in Štitar and other Slavonian villages, and even newer houses still have the same setback from the street, with grassy areas in front, a ditch, and a bridge.

It was the local colonel's responsibility to enforce the monarchical regulations. In dealing with the *krajišnici*, the Monarchy considered them to be difficult, crude, and unwilling to accept innovations. As I discuss in later chapters, these same attributes are used today by the government and the larger society to describe the farmers.²⁶ I found the Štitar farmers continue to talk, as they did during the Monarchy, about their difficult lives that have little to show for their efforts. Very rarely do the farmers admit that their personal state of living and farming is not as bad as they say it is. They believe they have to grumble about it because they are afraid that the government will take something away from them, if the politicians were to know how much they really have. I return to this point in chapter eight when I discuss the current policymakers' methods of influencing farmers' decisions and practices.

I have described how certain elements in the landscape came to be and how certain behaviors aided the continuation of family lines and farming livelihoods. However, I only briefly mentioned that *krajišnici* once lived in field houses, and I have said little

²⁶From the farmers' point of view, there are reasons why they have not been quick to accept the innovations, which I describe in more detail in chapter six.

about how the function of the field houses changed after people moved into the villages. The following section is a description of the role of field houses after the Monarchy created the villages and as the *zadruga* were dividing.

Field houses

Before the Monarchy forced people to move to the villages, *krajišnici* lived in houses that were conveniently located in their fields. When people moved into villages, field houses continued to assure the most efficient method of cultivating the small and scattered field plots and raise animals in the most cost-efficient way. Once the farmers were moved into the villages, the military headquarters banned all the members of the *zadruga* to reside in the field house. However, it allowed some members to live there on a regular bases. Hence, the *krajišnici* developed *rednja*—a rotation system for couples who went to the field houses for a promised number of days. In Štitar, *rednja* was for a week at a time. Other *zadruga* members would join the couple in *rednja* during days of large field activities, such as hoeing or harvesting. Usually the head household couple was not included in the rotation, but remained in the village house (Knežević 1990).

With the disappearance of the *zadruga* and as production became more mechanized, the importance of the field houses changed. First of all, the nuclear and stem families had fewer members, which resulted in a lack of couples to participate in the *rednja*. Instead of couples, an elderly member of a household continued to live at the field house during the week and return into the village on the weekends. Second, the introduction of tractors allowed farmers to travel further distances in less time, which took away the need to be present at the field house. It also resulted in less need for labor, so fewer people traveled less often to the field house. Third, food preferences brought changes that affected the

methods by which pigs and chickens were raised. Foraging for food did not allow the animals to grow fat enough, and for this reason animals were moved back into the village and fed a more fat diet of maize and small grains.

All this led to many field houses being abandoned and left to decay over the past thirty to forty years. During my fieldwork, only one elderly man was visiting his field house daily and staying there until night time. In addition, a few more individuals kept some of their animals at the field houses and visited once or twice a day to feed the animals. I also noticed that some Štitar farmers have been consciously reactivating their field houses, and others were building new ones to be used as weekend houses. However, with the new agricultural policy that is putting an emphasis on growing healthy food by using more natural methods, the field houses may gain the importance they once had, as I discuss in chapter eight.

Trade

The last structure that Monarchy created to be discussed is trade. There were two very different trade systems established in the *Vojna krajina*, based on the volume of valuable goods and the number of people involved in it. One was trade inside of the regiment and company or village borders, in which *krajišnici* were key players. This trade was subject to the military needs of the *Vojna krajina*, and so since the military always needed ready and able soldiers, the military headquarters restricted the amount of trading that was possible within the *Krajina* borders. This kept the internal trade on a small scale and involved a small amount of goods.

The Monarchy limited trade inside the frontier borders by controlling how many trading days were allowed a year and in how many places. Each village had an open

market day once a year. Štitar had its open market day on September 21st. Although, there is no market in Štitar any more, this is the day that the village still celebrates each year as Saint Matthew's Day, in honor of the village's patron saint. Another reason why internal trade remained small was a limitation on the movements of people and goods across the companies' borders. The Monarchy required a special traveling pass, and in order to get the pass tradesmen had to wait for hours in long lines at the company's office. Such control of trade allowed only a few people to support themselves by trade. Most sellers were local craftsmen and traders, and only occasionally did *krajišnici* sell their animals and other goods. As a result of the limited internal trade, village handicrafts were mainly used for meeting household and farming needs, and for clothing and food. The main products the *krajišnici* made were plum brandy, clay dishes, wooden coffins, and silk. They made nearly everything themselves, and what they did not know how to make they traded their services to buy (Karaman 1972:106).

Furthermore, having to meet military and work obligations, in addition to farming, *krajišnici* were not able to engage in serious trading or the production that would sustain it. In addition, since they were focused on producing the food needed for their own subsistence, there was not much cash circulating in the *Vojna krajina*. The Monarchy thought that by limiting internal trade it could assure the highest number of inexpensive soldiers. By imposing many obligations on the farmers, the Monarchy left them no time to trade or secure cash. Lastly, *krajišnici* did not have much produce to trade because what surplus they produced they had to contribute to village warehouses.²⁷

²⁷Each village had a wheat warehouse. Every year farmers were obliged to contribute a certain amount of wheat to the warehouse, which was then distributed among the villagers during floods. Although the floods were frequent, the food that was stored in the wheat houses often was not enough to cover the loss of a

Since *krajišnici* made very few crafts, there was a lack of native craftsmen in the Military Frontier. Hence, in 1830, the Hapsburgs allowed the immigration of German colonists who practiced craft making (Marko Landeka, personal communication: October 23, 2004). Despite the German crafters' presence, handcraft production and manufacturing were undeveloped primarily due to the subsistence-oriented agricultural production and the Monarchy's limitations on the internal market (Karaman 1990:16).

In addition to the internal trade, transnational trade involving large amounts of goods was active in the Military Frontier. The basis of this trade was the importation of goods from the Ottoman Empire which were intended for the internal Monarchy market. Trade between the Brod regiment and the Ottoman Empire was activated through Fort Brod, since it contained the only quarantine area for people, animals, and goods. The main products imported through Brod into Civil Croatia and further into Hungary were live pigs raised by the *krajišnici*. The pigs were taken from Brod to nearby open markets in Đakovo, Osijek, and Požega, and from there to the Hungarian market.

Another trading direction was the east-west route, along the Sava River. These goods were transported from Hungary to the central Monarchy. Hungary's main product was wheat, but other agricultural goods such as wine, tobacco, and salt were imported as well. The main export goods traveling down the Sava River were honey, wax, and raw silk. Raw silk, which was produced in the *krajišnici* households, was the major product of the Monarchy. As much as the Monarchy leaders limited the inner market development, they gave full attention to the well-established transit market development

farmer. Company colonels benefit more from the warehouses than the farmers because during the years when the wheat was not distributed the colonels sold it and kept the profits.

(Matanović 2002:106). However, changes came about as a result of the Industrial Revolution.

The Industrial Revolution, which began in 1848, spurred the expansion of urban areas and brought a more capitalistic orientation to many of the country's markets. The construction of railways made once distant lands more accessible and allowed for intermediary trade between the interior and the Adriatic coast. A railroad was built after the Hungarian occupation of Bosnia in 1878 that went across Slavonia and yet another was built in 1883 that went across eastern Srijem to Belgrade. In addition to the railroad system, more factories driven by steam engines were established after the 1850s in various processing industries, especially those for which the raw material was locally available. One example is the tannin factory in Županja (Karaman 1991:11).

The end of the Vojna krajina

After the Ottomans were defeated in Vienna in 1683, most of the Croatian territory was freed, which defeated the purpose of having a military border. Despite, *Vojna krajina* continued to exist until 1873 when it was finally demilitarized and the *krajišnici* became citizens. In 1883, Slavonia, which used to be a separate entity under the rule of the military headquarter, was joined with Civil Croatia which then after WWI became a part of the Kingdom of Yugoslavia, as discussed in the following chapter.

Summary

The political ecology outlined in this chapter allows us to understand the influences that major political regimes had on the Slavonian people and their present-day

environment. With this broad historical perspective I am better able to reach my ultimate research goal of exploring how the social, economic, and environmental status of the village, as influenced by local traditional ethics and agricultural practices, fit the EU's goals of rural preservation and agricultural sustainability. Understanding the village's past and current behaviors provides me with a basis from which to make a prediction of how Štitar farmers will adapt to the current agricultural policies. For instance, we now know how practices of awarding plots of land in different parts of the village taxable unit combined with partible inheritance rules as described in chapter five contributed to land parcelization and prevalence of scattered fields. We also tracked the history of how the villagers moved from fields into the villages; how this affected their relationship with the Austro-Hungarian Monarchy; and how their field houses living adapted to the smaller size of their families. Most importantly, we understand how the new families that were splitting from the *zadruga* inherited a part of their household's property and continued to carve out an existence.

The disappearance of the *zadruga* was an important sign of changes that were occurring within farming households as well as the society that surrounded it. Reviewing these changes allows us to look at the *zadruga* as a farming unit through its developmental cycles. In the beginning, before the Monarchy, multifamily *zadruga* existed out of a need for protection from enemies. During the Monarchy, *zadruga* continued to exist for protection, but they also served as a method for supporting farming families whose male members had many other civil and military obligations. With so many demands from the Monarchy, only a multifamily unit as *zadruga* was able to feed its many members by combining family labor resources to cultivate the land. When the

danger from the Ottomans disappeared and currency and private property rights were introduced, the basic reasons behind the *zadruga* existence were challenged. *Zadruga* commonly split as a result of changes in the family life cycle often due to having excessive labor resources for the available land. The land that the new families inherited from the *zadruga's* common property proved plentiful enough to support the families, some of whom also engaged in off-farm income producing activities.

The adaptive methods that Štitar smallholders employed as a response to the social and economic circumstances of their time are contrary to the stereotype of crude farmers who are resistant to change. In fact, these smallholders accept new technologies and practices. It is important to emphasize that they may do it at a different moment and at a different pace than the regime in power would like. They may decide to try a new practice when they reach a certain stage of their family developmental cycle, or when specific circumstances in the outside world occur. It is important for the current political regime to remember these findings when it tries to implement new agricultural recommendations and rules of behavior. Rather than viewing family farmers as stubborn and tradition-bound, this chapter offered substantial evidence in support of the Štitar smallholders' adaptability and flexibility, which have only increased their security and viability over the long term. In the following chapter, I continue to provide detailed accounts of the practices and behaviors that aid the farmers' resistance, focusing at the period after the WWI until the present.

From socialism to democracy in transition

In this chapter we continue to explore how the Štitar villagers adapted their traditional practices and behaviors to previous regimes, specifically the communist government period of 1945 to 1989. The chapter's opening story describes the post-WWII efforts of Štitar communists to realize goals of collective ownership, similar to the Russian *kolkhoz*, or communal property. The story presents the fate of a single man²⁸ and his family whom the local communists saw as the ideal leader for the village *kolkhoz*. It chronicles the efforts to start a *kolkhoz* and explains why it failed a few years later. It also introduces the village collective, *Napredak*, which was established after the *kolkhoz* failed, and describes how it differed from its predecessor. Later in the chapter I return to all these themes to elaborate further on them.

A farmer who doubted the communist collective ownership ideology

Ana Miličić was 76 when I met her. As I walked into her yard, entering through the *anjfor*, I saw an old woman dressed in black in the doorway. She was walking up a few low steps with heavy feet, holding onto the wall for balance. Her back was hunched and her face hidden under a black kerchief, the type that only elderly women wear these days.

²⁸I use the story of the Miličić family, instead of the Dominković family, because of their unfortunate, but unique, experience of being selected by the communists to be an example to follow for the rest of the Štitar farmers.

Her large farming hands with short and thick fingers were wrinkled and bony. When she heard my "*Hvaljen Isus i Marija*" come from behind her, she turned and smiled even though she did not know me. After I introduced myself, revealing my village heritage and connections with her neighbors, she invited me in and took me into her kitchen. She sat on the *kanapet*, a small day bed, beside her embroidery work. I sat on the chair closest to her, the same one I used in all my subsequent visits over the next year. Her embroidery was always near her or lying in her lap, and her wood cook stove almost always had a fire burning. In the winter, I would find her sitting in the warm kitchen, doing embroidery, her feet wrapped up in a thick blanket that kept them warm on the cement floor. Behind her was a small window that was always cracked open, so that her cats were able to come in and out as they pleased.

When I met *baka* Ana, she was a widow whose children were married and living elsewhere. She was lonely and had plenty of time to reflect on her life. She told me stories and I listened, sometimes for hours. One time she told of her father who was imprisoned because he refused to start a *kolkhoz* in Štitar; it is that story that I relate here.

Ana was born in 1927 in what was then the Kingdom of Yugoslavia, into the Miličić *zadruga*. The Miličićs were among the oldest settlers of Štitar, which gave *baka* Ana a *Šokica* identity. Her grandfather believed in owning as much land as possible and bought land wherever it became available.

I don't remember how much land my grandfather inherited and how much he then bought later. I do know that he was buying land all over the Štitar *atar*. He did not care where it was located, but he cared that it was a good fertile field and that its previous owners took good care of it (Ana Miličić, personal communication: January 24, 2004).

He, and his two sons and their families lived and worked together in the *zadruga*. The *zadruga* cultivated a total of 23 hectares of land and owned ten working horses and more

than a hundred pigs that were tended by a hired herdsman. They also had milking cows that met the *zadruga's* needs as well as supplying surplus that they sold locally or in Bosnia. They were also wealthy enough to travel in a private carriage with a hired carriage driver.

When Ana was nine years old, her father Ivan and his brother decided to split the *zadruga* and divide their land. They decided that each of the ten members of the *zadruga* would get an equal part of the land. *Baka* Ana remembers how the division happened and how it was not quite fair for everybody. *Baka* Ana's "parents had only two children at that time, so they took out only four parts of land. My uncle had four children, and they kept more land than we did" (Ana Miličić, personal communication: January 24, 2004). *Baka* Ana's father took 9.2 hectares and moved to another house in the village while his brother kept 13.8 hectares and stayed in the original *zadruga* house. Ivan knew that he would not be able to feed his family by cultivating his share of the land, so he continued to buy land. He stopped acquiring land when the war broke out because his only son, Ana's brother, went to war and there was no certainty that he would return to care for the land. Fortunately, he did return and Ivan was relieved to know that somebody would continue to farm. Then a real misfortune hit the family.

After WWII ended and the Croatian communists gained control, large landowners in Štitar were forced into *kolkhozi*, the idea of which was borrowed from Stalin's communist Russia. *Baka* Ana remembers this time well for all the memories of pain and fear that it brought to her. She remembers how the communists came into her home and

wanted my father to start up a *kolkhoz*. Villagers knew my father as a man who was always willing to help those in need. He enjoyed respect and appreciation among the villagers. The communists knew this, and that is why they picked him to

start up a *kolkhoz* in the village (Ana Miličić, personal communication: January 24, 2004).

Ivan, however, did not believe in this model by which land, harvests, animals, and machinery were communal. As *baka* Ana said, "he did not want to bring tears to his fellow villagers by forcing them to give up their private ownership and join a *kolkhoz*." Because he refused to believe in and follow the communist ideals, Ivan was removed from his home and family and forced to serve a three-year jail sentence. Not only was he imprisoned, but his family fell into disfavor with the communists. *Baka* Ana remembers how

for three days after my father was taken, the communists carried our belongings out of our house and yard. They took everything: land, animals, food, seeds, clothes, and even the plum brandy. They even tried to kick us out of the house, but we refused to leave. They left us with almost nothing. They only left us a pair of horses and no land to cultivate. Our neighbors took care of us until the next spring. In the spring, the communists decided to return 2.3 hectares of land to us. My brother started cultivating the land with the pair of horses the communists left behind (personal communication: January 24, 2004).

While Ivan was in jail, the *kolkhoz* was started, but it did not last long. Fortunately for Ivan, he served only one year in jail and then he returned to work his land. All the Miličić's land that was taken for the *kolkhoz* was returned to the family after the *kolkhoz* was dissolved. However, Ivan was never again the same man. He became ill while in jail and died of a heart attack several years later.

When the local communists realized that the *kolkhoz* was not a success, they created *Napredak*, another type of village cooperative arrangement. *Napredak* was different from the *kolkhoz* in that it did not require its members to give their private property to the collective. Instead, *Napredak* formed cooperative relationships with its members by contracting production and supplying its contractors with seeds, fertilizers, and

pesticides, as well as renting machinery. It also served as a link between farmer-producers and the nationally owned food processing units.

Introduction

This chapter continues to describe the forces to which Štitar farmers have responded and those that have shaped their landscape, behaviors, and farming. The time span under observation begins with the fall of the Monarchy and proceeds to present day. By describing land expropriation and colonization measures implemented in Yugoslavia between and after the two World Wars,²⁹ I continue to explore answers to my first research question. Certain events I describe are important in understanding the reactions of present day family farmers. For instance, describing a direction of land reforms is important in understanding how current pattern of small and scattered fields came to be. The history of the various collective ownership models offers an explanation as to why Štitar farmers of today hesitate to form a cooperative which would help them to secure an entry into the European market. Moreover, investigating what happened during post-World Wars land reforms helps in understanding why radical land consolidation programs should not be an option in solving the problems of Croatian small landholders. The chapter ends with a description of the state of affairs in which Croatia and Županja were found after the last Balkan war and the disintegration of Yugoslavia. This is introduced to further illustrate my point that family farms resisted another change of regime and yet

²⁹Although there is vast literature on land reforms, collectivization, the state's monopoly of agriculture in the former communist countries, in this dissertation I limit myself to the local information sources. Since the focal interest of the dissertation is agriculture and present day rural life, I only provide historical backgrounds in order to make connections between today's rural life and events in the past. Hence, using the literature about the experiences of other communist countries is beyond the scope of this dissertation.

continued to exist, relying on their subsistence production and partial market involvement.

Let us now begin to explore political regimes that emerged after the Austro-Hungarian Monarchy dissolved by describing population characteristics and migrations that followed the dissolution of the Monarchy.

Population characteristics

After the fall of the Habsburg Monarchy and the dissolution of the *Vojna krajina* in 1883, *Šokci krajišnici* became citizens and continued living in the new administrative unit—Županja district³⁰—which existed until the early 1990s. With a population density of 60 people per square kilometer in 1970, which was below the national average, the Županja district was sparsely populated (Urbanistički Institut SR Hrvatske 1979:47). Štitar was one of the independent district municipalities and had a population of 2,611 in 1971, slightly below the district average³¹ (see Table 4.1 and Figures 4.1a and 4.1b). Štitar has always been a mid-sized village when compared with the largest and wealthiest villages of the Županja district, like Babina Greda, Cerna, Gunja, or Vrbanja.

³⁰The district covered an area of 816 square kilometers and had a population of 49,107 people in 1971 (see Table 4.1 and Figure 4.1a) (Urbanistički Institut SR Hrvatske 1979:47).

³¹The average size of a village for the District was 3,069 people or 2,683 people when excluding Županja.

Table 4.1 – Population of Županja district, Županja, Štitar, and Babina Greda, 1857–2001

Year	Županja district	Županja	Štitar	Babina Greda
1857	23,139	–	1,620	3,943
1869	26,482	–	1,803	4,221
1880	28,167	–	1,669	4,009
1890	32,030	–	1,694	4,016
1900	33,870	–	1,717	3,918
1910	33,461	–	1,681	3,973
1921	30,989	–	1,483	3,575
1931	33,108	–	1,595	3,641
1948	36,674	4,695	1,842	4,061
1953	40,748	5,391	2,000	4,611
1961	45,960	7,024	2,315	4,872
1971	49,107	8,865	2,611	4,620
1981	48,001	10,263	2,416	4,159
1991	49,026	11,947	2,488	4,205
2001	–	13,775	2,608	4,262

Source: RH-Republički zavod za statistiku. Popis stanovništva 1991. Narodnosni sastav stanovništva Hrvatske po naseljima. Dokumentacija 881. Zagreb, 1992.

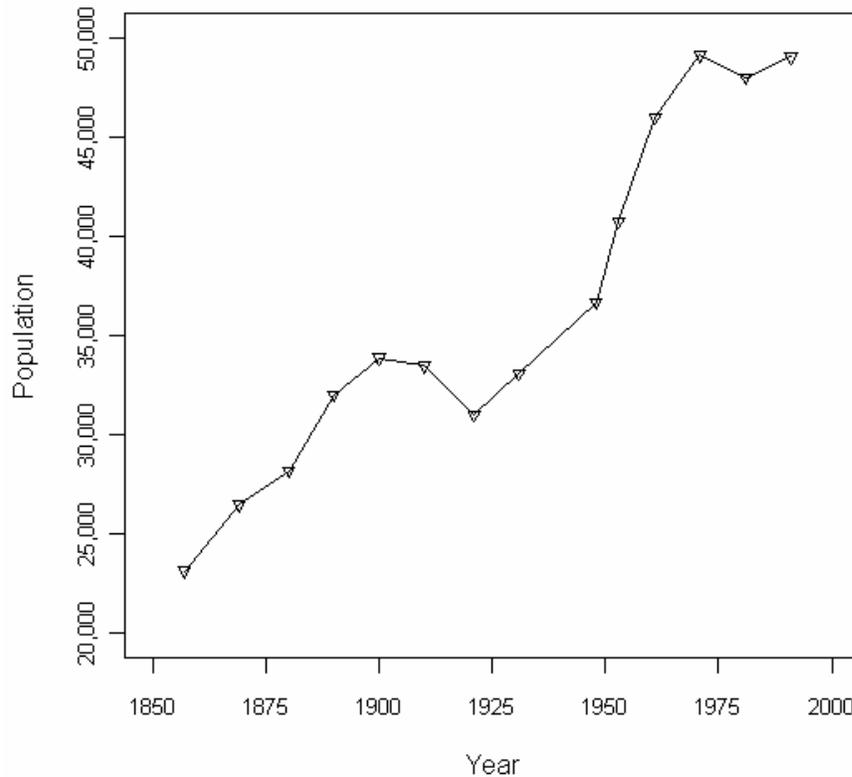


Figure 4.1a – Population change of the Županja district, 1857–2001

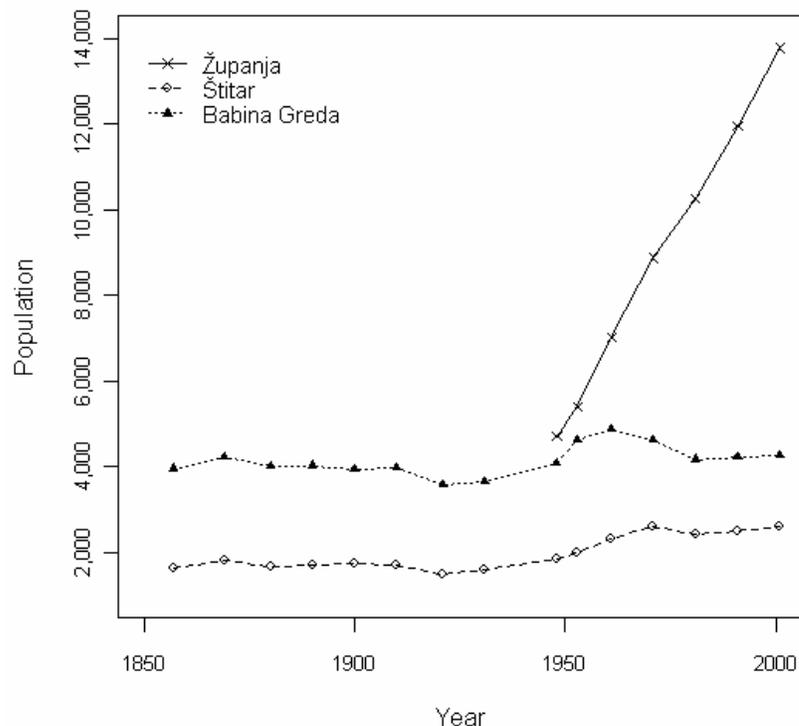


Figure 4.1b – The population changes of the two villages of the Županja district and the city of Županja, 1857–2001

It is interesting to note that the populations of both Štitar and Babina Greda have been stable since 1880. This population pattern is a result of various events. In brief, in the period between the two World Wars, the in-migration of people from poorer parts of the country resulted in keeping the population of Štitar and other villages close to the Bosnian border stable. Secondly, during the late 1940s and early 1950s, new factories that were built in Županja attracted people from the less economically developed parts of Yugoslavia, primarily Bosnia, Dalmatia, and Lika. Lastly, during the last Balkan War, although the villages of the Županja district were heavily shelled by Serbs from Bosnia, they still housed many displaced persons from Bosnia. The combination of these events kept the population of many Županja villages relatively stable.

Although the population increase in some villages was directly related to the improved local economy, two points must be made. First, with its population increase in the post–WWII period, the Županja area differed from the rest of Slavonia which faced population decreases for the reasons discussed below. Second, the Županja industries were never able to accommodate all the influx of labor. Those who did not find employment in one of the Županja factories at least found better land to cultivate or opportunities for employment abroad. Available land, the close proximity of family, and lower costs of living kept people in the Županja area, even when they had to take a job away from the village. Such migrations of people were in fact government-encouraged and were a part of the agrarian reforms put in place after WWI and WWII.

Colonization and agrarian reforms between 1918 and 1945

As discussed in the previous chapter, landholdings in the areas of the former *Vojna krajina* were small and scattered, a situation that remains to the present day. The first agrarian reform began during the Kingdom of Yugoslavia (1918–1941) and was seen as having brought an end to feudalism in Croatia. This reform was mostly geared toward dividing large landholdings that belonged to the Croatian nobility and church. Since most of these landholdings were located in Civil Croatia and to a lesser extent in Slavonia, this reform did not have much effect on the Županja district.

What occurred along with agrarian reforms and had an effect on the Županja district was the colonization of the citizens of the Kingdom prompted by the government. This process began in 1919, continued intensively until 1923, and went on with a little less intensity until 1941. The goal of the colonization was to move the rural poor from more

densely inhabited areas of Yugoslavia, where there was not enough fertile land to cultivate, into sparsely populated Slavonia and Baranja where there was felt to be plenty of land available. The drawback of this process was that it did not provide equal treatment for different nationalities. Since the Kingdom's government was pro-Serb oriented, priority in receiving land was given to anybody who voluntarily joined the Serbian army in any previous war. This resulted in further mixing the ethnic groups in Yugoslavia, specifically in the Croatian border regions with Serbia and Bosnia. These volunteers received up to 5 hectares of land per person, which further exacerbated the problem of small and scattered fields (Vrbošić 1997:321). In addition to these people who were settled by the government, there were those who migrated to Slavonia and Baranja on their own will.

Some researchers argue that since the priority for receiving expropriated land was given to individuals who fought in the Serbian war, the Serb-oriented Kingdom of Yugoslavia used agrarian policy to create a "greater Serbia"³² (Simončić-Bobetko 1997, Vrbošić 1997). Regardless of the nationalistic reasons behind colonization, the result of the post-WWI agrarian reforms was an increased number of small landowners. Farmers who already owned some land and desired to own more were not able to receive more, and instead, individuals who did not own any land received a few hectares to cultivate.³³

³²Political reasons behind colonization are beyond the scope of this dissertation. However, I return to this point later when I discuss the Serbo-Croatian war which re-invoked the idea of a "greater Serbia." This idea was used by the Serbian nationalist government to express territorial pretensions and by the Croatian nationalist government to create fears of the Serbian minority in Croatia and outside of the borders.

³³By 1929, there were more than 108,000 newly created small landholdings of between 0.6 and 2.8 hectares. The total area of the new landholding was only 90,502 hectares, which was less than 0.83 hectare per landholding (Matička 1990:15).

As fewer people had enough land to produce a surplus, the number of farms producing only enough for subsistence increased. Lack of surpluses to sell resulted in decreased agricultural income. This, coupled with increased taxes by the Kingdom's government, resulted in difficult times for small landholders. Since there was a lack of money, small landholders were not able to buy the tools and machinery that would have improved their agricultural production. Some took out loans, but during the agrarian crisis between 1930 and 1934, when agricultural prices dropped, many found themselves unable to pay off the loans. Forced to sell their produce for lower prices, many small landholders did not earn enough to pay their tax obligations. Some were in so much debt that they had to leave their landholdings (Matička 1990:20). This was the condition that small landholders found themselves at the beginning of WWII when another political regime—that of the ultra nationalist *Nezavisna Država Hrvaska (NDH)* or Independent State of Croatia (1941–45)—took over.

As early as 1940, all of Yugoslavia's neighbors—Hungary, Romania, and Bulgaria—had joined the Axis' Tripartite Pact which left Yugoslavia on its own. Italy had already allied with Hitler and was planning an attack on Greece. Since Hitler needed the territory of Yugoslavia to launch an attack on Greece, he applied strong pressure on Yugoslavia to join the Tripartite Axis. Surrounded by the Axis and militarily unprepared, the Kingdom government cautiously eased its way toward the Reich and eventually agreed to the Tripartite Pact in 1941. However, soon followed a military coup in Belgrade, which overthrew the Kingdom's regime and forced the king to seek safety in exile. The coup made the Slovenes and Croats feel that a war was imminent for Yugoslavia, which resulted in the emergence of the right-wing ultra nationalist group in Croatia, who had a

different agenda. This group was called Ustaše and had a strong interest in forming a separate state of Croatia. They saw the German invasion of Yugoslavia as the perfect moment to achieve Croatian independence. They negotiated an agreement with Hitler to serve the Axis as auxiliaries in return for the Nazi help in demolishing the Yugoslav kingdom. After the Yugoslavian king left the country, Ustaše proclaimed the Croatian independence and allied with Germany (Rothschild and Wingfield 2000:42–45).

As nationalist and Nazi allies, Ustaše not only exterminated Jews, but they also persecuted a substantial amount of the Serbian-Orthodox population in Croatia as well as in Bosnia and Herzegovina. (Later in the chapter I present the role that reviving Ustaša symbols played in the last war in the Balkans). They also implemented agrarian reforms in which the post–WWI colonization of Croatia by Serbs—as ordered by the Kingdom of Yugoslavia—was replaced by colonization by Croats. The *NDH* government confiscated all the land that was previously given to the Serbs and claimed it as property of the State (Matička 1990:22). The government moved Serbian families out of Croatia and gave their land to the people who migrated from other, less fertile parts of Croatia. However, this form of colonization lasted only as long as the *NDH*.

During these turbulent times, a number of resistance movements were emerging in Nazi occupied Yugoslavia, with the most popular being the Communist Partisans, led by Tito. Since many people despised the Nazi and the *NDH*'s partnership with Hitler, they joined the Partisans who fought against Hitler. Quickly gaining volunteer support allowed the Partisans to gradually liberate zones that were within the *NDH*, which eventually undermined the Ustaše regime and ultimately brought its end. Tito and the Partisans were committed to forming a Yugoslav federation which was not necessarily

supported by the masses. However, the communists' discipline and ideological commitment combined with the personal quality of Tito's leadership won the support of people for the communists (Rothschild and Wingfield 2000:56).

The post-war Yugoslavia quickly developed a different sort of communism than what was found in the other communist states of Eastern Europe, mostly in terms of its ideology, economic and political structures, and the freedoms allowed to its citizens (Henderson and Robinson 1997:81).³⁴ The country was clearly more western in its economic development, and its citizens enjoyed greater freedom to travel than was the case in other communist countries. Apart from a different ideology toward western Europe, the Yugoslavian communists also implemented major political and economic programs which included industrial expansion, further agrarian reforms and colonization efforts, and revitalization of rural areas, as described in the following sections.

Industrialization of the Županja district

Until 1945, the tannin factory that opened during the Habsburg Monarchy of the 19th century was the only factory in Županja. Then between 1945 and 1963, several food-processing factories were opened. The first industry to begin operations was the sugar refinery.³⁵ After its initial expansion before WWI, when there were eight sugar refineries

³⁴Yugoslavia was different than its communist neighbors mainly for two reasons. First, Tito broke up his ties with Stalin in 1948 after which the communists followed Leninism and more of a socialist path of development. Secondly, Yugoslavia's ethnic and cultural diversity were great, even in terms of Eastern Europe, which later brought to its disintegration.

³⁵Sugar processing had an interesting beginning in Europe. Since sugar was extracted from sugar cane that did not grow in Europe, scientists looked for another source of sugar. In 1747, a German scientist discovered that he was able to extract sugar from sugar beets (Blažinkov 1984:112). After this discovery, sugar refineries opened all over Europe. The first one was built in 1802 in Poland, from whence it spread

in what was the Kingdom of Yugoslavia, sugar beet production increased and expanded after WWII. This called for an increase in the processing capacity. Between 1947 and 1960, six more sugar factories were built in the socialist Yugoslavia, one of which was the Županja refinery. The by-products created from the sugar production included beet pulp which was used as animal feed and syrup which was further processed into alcohol and bread yeast. During socialism, sugar beet production, especially in the state-owned sector, was intensive and industrialized with the use of modern machinery and agricultural practices (Blažinkov 1984:116).

In an effort to increase production, the Županja refinery introduced the use of mineral fertilizers to its farmers/producers, who, as members of the village cooperative *Napredak*, grew sugar beets as cash crops on part of their fields. (In the later sections, I describe the formation of *Napredak* and its role in introducing novelty agricultural practices to family farmers). Until 1957, the refinery gave free fertilizer to the farmers to encourage them to increase their yields. Since the small-scale sugar beet producers did not have the necessary machinery for sugar beet cultivation and production, the refinery purchased 64 tractors with plows and made them available to the producers through *Napredak*. These were the first tractors in the Županja district villages. However, the refinery had more processing potential than the farmers were able to meet. Therefore, in 1963, the communists formed a state-owned collective farm called *Poljoprivredno dobro Županja*, which produced sugar beets and wheat (Blažinkov 1984:117–118). (Later in this chapter, I describe the formation of this collective).

further into western Europe and later into the Austro-Hungarian countries, including Croatia. The first sugar factory in Croatia opened in 1840 in Čepin near Osijek and others followed.

Another processing industry that developed in the post–WWII Županja was the milk factory Pionir (later the name was changed to Domil).³⁶ At first, the factory's processing capacity was larger than the volume of milk being produced by local farmers, which is why the factory organized milk collection from a larger area through *Napredak*. Even then, only two to three thousand liters of milk were collected, while the capacity of the factory was 20 thousand liters. Milk production on private farms was low for a couple of reasons: a lack of high milk yielding cows; and private farmers were selling a lot of their milk in the Brčko market in Bosnia for a better price (Miličić 1984:135). Therefore, the communists implemented a few measures to increase the milk production. They introduced a new dairy cow breed—Simmental—which was believed to produce higher volumes. Even then, the milk production on private farms did not meet the factory's full processing potential. The low-milk production problem was resolved when the *Poljoprivredno dobro* Županja established a cattle farm Stočar, which housed mostly Simmental cows and about 600 east Frisian breeds. Stočar also had a meat processing operation (Miličić 1984:137).

In addition to these, other factories that were established included wood processing unit, wheat silo, and the unit that produced agricultural machinery and train cars.

The new industries employed rural labor, primarily those who owned very little land and needed other income to support their families.³⁷ Developing industry in the Županja district resulted in increasing employment from 7.7 percent in 1956 to 10.9 percent in

³⁶Built by UNICEF as a special aid for children in the countries damaged in WWII, the milk factory began operations in 1952.

³⁷See Escobar (1995) for an explanation of how creating economic terms of underemployed or unemployed rural labor allowed for development planning.

1976 (Urbanistički Institut SR Hrvatske 1979:33–35). Industrialization and the creation of job opportunities also brought in-migration to the Županja district. Most of the immigrants came from Bosnia and they mostly settled in the villages closest to the Sava River, like Štitar or Babina Greda, which showed a corresponding population peak in 1960s and 1970s (see Figure 4.1b, page 107). In many villages, the number of Bosnian immigrants surpassed that of the native population (Urbanistički Institut SR Hrvatske 1979:38).

Along with in-migration into the Slavonian villages, there was out-migration abroad for employment. This possibility to look for work abroad existed because Tito allowed freedom to travel, which consequently reduced unemployment at home, while providing an influx of Western currency into the economy (Henderson and Robinson 1997:84). The post-WWII industrialization of the Županja district brought massive in-migration, which soon resulted in the labor supply exceeding demand. Fortunately, many western European countries such as Austria, Switzerland, and Germany, faced the opposite trend. They opened their doors to legal and illegal in-migration, thus encouraging many people to leave their villages in Slavonia for work abroad. For instance, according to the 2001 population census in Štitar, 10 percent of the families were working abroad, though they maintained a residence in Štitar (see Table 4.2, page 344). (I discuss what role the income generated abroad plays in the household economics in chapters six and seven). Employment opportunities brought changes in the farming household income. With some members holding outside employment, even the smallest farming households were able to produce subsistence crops and to partially engage in the markets, thus enabling them to hold onto their land and pass it on to successive generations.

State of the post–WWII agriculture

At the end of WWII, the majority of the Županja district population was agrarian³⁸ (73 percent) (Kokanović 1985:12). Agriculture typically occurred on small family farms that cultivated with horses and wooden plows and had low yields. Almost 80 percent of agriculture in the Županja district was performed on landholdings smaller than 8 hectares (see Table 4.3, page 344). Typically, the households that owned up to 4.5 hectares of land did not own working animals but borrowed them from the larger landholders. Landholdings between 4.5 and 8 hectares normally produced crops and livestock primarily for subsistence and only a small amount for sale, mostly pigs, milk, and wheat. Households who owned more than 8 hectares produced subsistence needs as well as surpluses for sale. Also, they often hired the labor of individuals who owned less or no land, as did the family of Ana Miličić, as discussed in this chapter's opening story.

All these farmers diversified production between grain crops and animals, which provided them with food and manure. They used manure to enhance soil fertility, in addition to crop rotation and growing hairy vetch in wheat fields (Ana Dominković, personal communication: April 13, 2004). However, the communists viewed these farmers who relied on human labor and cultivated scattered fields limiting the full agricultural potential in Slavonia. Thus, the implemented land reforms, which are described in the next section.

What the communists failed to recognize was that Štitar farmers employed farming strategies that best matched the circumstances under which their land was subject to

³⁸Agrarian population contains all active individuals whose work is in agriculture, fisheries, and water management, as well as individuals who do non-agricultural work but are employed in institutions related to agriculture (Urbanistički Institut SR Hrvatske 1979:49).

frequent flooding from the Sava River, further complicated by a high underground water table. The levee³⁹ that was built during the Austro-Hungarian Monarchy and later extended from Zagreb to Mitrovice did aid in preventing floods. However, the problem of high underground water level persisted to the present day, although the communists put some effort in resolving it, as I describe later. Passed the failed efforts of the communists, Štitar farmers always have employed cultivating strategies that had helped many generations of farmers to adapt to Nature's challenges.

The extent to which the village has always been affected by the river is well documented in the personal diary of Štitar farmer, Ivan Živković, who wrote down all of the most important natural and family historical events from 1919 until 1940. Ivan lived and cultivated land before the era of tractors and mineral fertilizers, when yields were low and most labor was performed manually. He described floods as late in the summer as July, which then either postponed maize seeding or damaged young maize plants, resulting in lower overall yields. He also described November floods which damaged young winter wheat plants seeded in October. Some years it rained so much late in the spring or early summer that the fields were too wet to seed at the optimum time, or, if the fields had been seeded, the excess moisture caused the crops to root and yield poorly.

Some of the most interesting events Ivan described happened in 1929, when the spring and the summer were dry and the fields were dry, but the winter was so cold and long that ice on the Sava did not melt for seven weeks, until March 12. Then, in March 1932 the Sava flooded the fields, which was followed by four days and nights of rain in

³⁹The first levee on the Sava was built in 1764, from the village Ruščice near Slavonski Brod to Rajevo Selo. Later, on a few occasions the levee was added in width and height: in 1878–1880, 1891–1892, and 1922. The biggest constructions were done between 1926 and 1932 when it was built as far as Mitrovica (Kokanović 1985:16).

April which caused the river to break through the levee in two places in Štitar. Later that year, the levee was improved and raised in an effort to prevent future flooding. However, the following year was difficult for most of the village as the previous year's wheat yielded poorly and the winter of 1933 was long and cold. Also that year the river did not flood but it rained a great deal, which prevented many fields in lower elevations from being dry enough to be seeded on time. In addition to the floods and excessive rains that affected Štitar farmers, Ivan described late May frosts that damaged wheat right before harvest as well as young fruits and vegetables; summer droughts that burnt crops and decreased yields; and late summer hails that ruined maize.

What is most significant is that these same natural phenomena and ecological factors still affect Štitar farmers today. The only factor that has changed is that the river floods are absent because the levee was again raised and expanded in 1986. All of the other natural factors that troubled Ivan in the first half of the 20th century still trouble the Štitar smallholders of the early 21st century: a high underground water table, excessively wet springs and falls, hot and dry summers, late May frosts, and summer hails.

What helped Štitar farmers in overcoming the ecological disadvantages were practices they employed to reduce the ecological risks. Cultivating scattered fields is one of their risk management practices (Goland 1993). Although agricultural inputs like labor and fuel are increased when cultivating scattered fields, the chance of ecological disaster is decreased when land is scattered in several locations. Other factors that help Štitar farmers to minimize the ecological risk include their farming experience; ecological knowledge; diversified production; and combining subsistence and surplus production that has allowed them to keep their market independence and thus their

relative stability, because "in crisis, [they] are able to maintain their existence by increasing their efforts, lowering their own consumption and partially withdrawing from any market relations they may have" (Netting 1993:61). These and many other practices present "a set of defenses against the uncontrollable vagaries of weather, prices, and war" (Netting 1993:330). Therefore, answering my first research question, I state that these practices helped Štitar smallholders persist through regime changes and ecological uncertainties and they kept them viable, something less likely in the large-scale and state-owned collective farms.

Despite such smallholders' remarkable viability, the post–WWII Yugoslavian communists, as well as the present government, do not realize the smallholders' adaptations to their environments and ecological conditions. Instead, the governments' attempt to resolve what they define as "problems" of agricultural production on small family farms⁴⁰ has in fact threatened the very features which smallholders employ to manage their risks. This chapter will now look at what the communists intended to accomplish with agrarian reforms.

Post–WWII agrarian reforms

At the beginning of their regime (1945–1990), the communists focused their attention on the small landholders and those who did not own any land, once again at the expense of the larger farm owners. Post–WWII land reforms were aimed at confiscating land from the wealthiest farmers in order to create nationally owned collectives and to

⁴⁰The problems of the current agriculture as viewed by the Croatian government, as well as goals of the national agricultural policy, are further discussed in chapter eight.

provide some land to the poorer farmers. In 1945, the communists enacted a law that allowed for the confiscation of all property exceeding a 20-hectare maximum. This process was often conducted by the local communist administrators or their local supporters, who took advantage of their power position and secured good quality land and in better locations for themselves, their family, and friends.⁴¹ Farmers who, like Ivan Miličić from the chapter's introductory story, owned more land than the maximum allowed, whose land was already in fewer pieces, or whose fields were more fertile, were faced with the greatest losses. They lost the amount of land that exceeded the allowed maximum. They also lost the most fertile land and in return received land of lesser quality.

Negative feelings associated with losing land to the communists' land reforms can still be found today among individuals, many of whom have submitted cases to the courts in hopes of receiving their land back through the latest round of land ownership reformations. Although most farmers did not oppose the communists, there are examples of Štitar farmers who stood up to the local communists and went to a trial for their land. Archival documentation shows a case of the Štitar local government against a farmer and his son, who divided their land and lived in two separate households but continued to help each other cultivating the land (Unknown author 1963). These farmers were accused of owning more than the allowed maximum, which together they did. In this

⁴¹Marko Landeka (personal communication: November 20, 2004) told me that when asked, people in most villages said that the local communists who conducted the land reforms were, in fact, village drunks who never owned much land or had much motivation or ambition to pursue a living in agriculture. By becoming members of the Consolidation Committee they gained a powerful position that then allowed them to take care of themselves and their family members, friends, and neighbors. They were also assured of keeping or receiving the most fertile lands in the best locations and in fewer pieces (Švel-Gamiršek 1942). Farmers like Ivan Miličić, who was presented in the opening story, who owned land and had pride in his profession, had nothing to gain from the communists, which is why Ivan refused to start a *kolkhoz*.

particular case, the farmers were able to prove that their land property was separate and that they each paid taxes on their land. Other archival documents reveal land confiscations from individuals of German descent or from Gypsies (Unknown authors 1948), whom the communists expelled from the country.

All the expropriated land the Communists joined into a land fund, from which they then awarded land to different interested individuals and organizations. The individual owners contributed only 2.3 percent of land into the land fund.⁴² It is a striking fact that the largest number of landholdings and of hectares of land in all of Croatia was expropriated through the reform process in Slavonia. This however is not a surprise, if we remember that the Slavonian land is a part of the Pannonian Plain and thus was seen as having the potential for large-scale and extensive agricultural production. The land from the fund was awarded to several different interested parties: villagers without any land or with a small holding; soldiers; village collectives; state agricultural sector; and various other institutions like schools, and health and welfare institutions. Most of it (62 percent) ended up in national collectives (Matička 1990:93).

Although the communists never admitted it, the consequence of land expropriation for the family farmers was an increasing number of small fields and the furthering scattering of the fields. The number of small and medium-size landholdings between 2 and 10 hectares increased and the number of those larger than 10 hectares decreased (Matička 1990:134–135). The smallest landholdings were only able to produce part of their subsistence, which with increased employment opportunities allowed some

⁴²Almost 1/3 of the land came from the land that was abandoned after WWII by Germans who fled the country or were dislodged by the communists. The rest of the land in the fund (or 67 percent) came from land expropriated from large landholdings of banks, corporations, and the church (Matička 1990:95–97).

households to continue their viability as mixed farming households. (I describe these later in the chapter)

Land reforms differed for every *atar* and in some areas they were not completed. The Štitar *atar* went through two land expropriations, and each further decreased the maximum amount of land allowed to be held by one household. Therefore, as a result of both politics and the disadvantages of local natural phenomena, very few Štitar farmers today cultivate more than 30 hectares. I now move to exploring the course of the land reforms on the Štitar *atar*.

Land expropriation and consolidation in the Štitar *atar* from 1942 to 1956

Before the expropriation began, the Consolidation Commission divided the land of the Štitar *atar* into seven categories of soil fertility (class 1 was the most fertile and class 7 was infertile land). The most fertile land was expropriated and turned over to the *Poljoprivredno dobro Županja* that owned more than 400 hectares of land. Some farmers who lost their best land were compensated with fields of lesser fertility, or fields that were located further away from the main field paths. Archival research gives a profile of the Štitar families from whom land was expropriated.⁴³ The maximum amount of land that was allowed to be owned in Štitar was 11.5 hectares and everything above that was expropriated.

⁴³In Štitar, there were three German families who owned a few hectares and whose land was expropriated and put into the land fund. In addition, there were three farmers' landholdings with more than the maximum allowed: Miličić *zadruga kbr.* 199 owned 22 hectares; Benaković *kbr.* 304 owned 23 hectares; and Dominković *zadruga kbr.* 375 owned 23 hectares. A total of 8 hectares was expropriated from these landowners. Finally, 12.6 hectares were expropriated from the farm that formerly belonged to the Jewish tradesman Polak and to a few Gypsy families who left during or shortly after WWII (Unknown author 1948).

At the end of the reforms, the Consolidation Commission concluded that it was successful because farmers were left with fewer fields to oversee. The communists claimed that after the reforms, individual landowners owned two to three fields, instead of between six and eight before the land reforms (Panjković 1983:260). The Consolidation Committee also insisted that the merging of fields was not the only benefit of the land reforms. The participants were promised that the greatest benefits would come from the completion of the canal system, which followed during the second land reform in Štitar.

Despite the communists' optimistic evaluations of the land reforms, Landeka (personal communication: November 20, 2004) and oral history offer quite a different picture. For one field the size of 5 hectares, for instance, a farmer received land in two or three different locations and of poorer fertility. The land was then further fragmented as farmers divided it among children or as they sold smaller parcels. Therefore, the present picture of small and scattered fields that dominates the Štitar *atar* is the result of a combination of the communist implemented land reforms and local rules of inheritance described in chapter five.

After the 1942 land reforms in Štitar, the government decided to proceed with another one in 1956, with two main goals: to consolidate the field plots of the state-owned collectives into large blocks of land and to complete the irrigation process that was previously started. In this reform, Štitar farmers who owned the maximum allowance of 11.5 hectares lost an additional 1.7 hectares and were left with no more than 9.8 hectares. The land reforms ended with the formation of a small number of state-owned blocks of land that were located near major roads, well connected by periodically

maintained field paths, and were irrigated. In addition, a total of 110 kilometers of canals were dug in the Županja district (Narodna Republika Hrvatska - Kotarska Komasicona Komisija 1947). The canals were bordering the fields and collecting excess water, taking it into the Bosut River. Unfortunately, a rise in the water level of the Sava resulted in a slowing of the Bosut River flow, subsequently causing the irrigation canals to function improperly. The communist government and engineers soon realized that only a detailed canal network would completely remedy the high water table levels and bring the area to its fullest agricultural potential. However, they were not willing to undertake such an expensive project. As a result, this problem persists today. The current Croatian government continues to discuss this issue, but no resolution has been reached.

It is clear that the above described land and agricultural policies, combined with industrialization after WWII, brought significant changes to the cultural, social, and economic lives of rural settlers and family farmers. Specifically, land reforms encouraged and expedited the splitting of *zadruga*, most of which had already been divided once or twice. Many *zadruga* that had not previously divided and that owned larger amounts of land decided to do so in order to avoid losing their land. Other families divided because some members desired a non-agricultural career and the opportunities for such existed due to industrialization. Along with industrialization came the mechanization of agricultural production which resulted in a need for fewer people on the farm.

The formation of the village cooperative

Similar to their counterparts in Russia and China, the Yugoslavian communists intended to collectivize agriculture and organize production through communes. They attempted to eliminate private property and to share production among households in the communities. The goal was to mechanize and increase agrarian production and remove the inequalities that came from private property ownership. The intent was for the "family households to continue to exist as reproductive social units, but agricultural labor and technology were to be managed by corporate institutions, often at the level of the village community" (Netting 1993:232–233). The first attempt in this direction, as presented in the chapter's opening story, was to form a *kolkhoz* as a way of collective ownership of land, yields, animals, and machinery.

When Ivan Miličić, who was chosen to be one of the co-founders for his village, refused to support this model of communal property ownership, he lost his freedom and many of his belongings. Unlike Ivan, some farmers gave up their privately owned land to the collective ownership of the *kolkhoz* (Ana Dominković, personal communication: July 7, 2004). The *kolkhoz* had some benefits, but it also presented challenges to collective members. For example, the *kolkhoz* horses were kept in the same stable, and corn and wheat were stored in one silo. The members worked together on the property of the *kolkhoz* and were paid money for their labor. They were only able to keep their pigs and chickens as individual property. The *kolkhoz* arrangement was difficult because farmers had to buy flour—one of the main food staples— and yet they grew wheat on their fields which they no longer owned. Similarly, they grew maize and yet had to buy it to feed their pigs and chickens. As a result, many members began expressing a desire to leave

the *kolkhoz*. Coincidentally, Tito broke his ties with Stalin, which resulted in the communists abandoning the idea of the collective ownership. Fortunately, the farmers who joined the *kolkhoz* were able to reclaim their land and occasionally their animals, but not the yields from previous years (Ana Dominković, personal communication: July 7, 2004).

Private property ownership allowed Slavonian family farmers to continue to cultivate their small and scattered fields, producing subsistence and some surplus for sale. Along with the production on family farms came large-scale and extensive production performed on the nationally owned collectives that employed landless rural settlers. While scientific knowledge and the newest technologies were applied on these collective farms, family farmers were left to rely on their local knowledge and traditional farming systems. What is interesting to note is that the current government feels that it is the lack of scientifically-based farming practices and updated technologies that will make it difficult for Croatian family farms to compete in the European market. Yet it is family farms, not the state-owned and mechanized farms, which survived the last Balkan War and continued to farm. I return to explore this paradox in chapter eight.

After the failed effort to maintain the *kolkhoz* in Štitar, the local communists desired to establish a different kind of cooperative arrangement between the processing industry and the farmers. I was told a story about its establishment by my uncle, Ivan Dominković, who was asked to establish this village cooperative in Štitar and to serve as its manager. Ivan remembers how it all happened.

It was really father who was worried and thought that we should maybe start to live differently and that we should split up. My friends, who were communists, wanted me to take the village cooperative establishment into my own hands. They were the president and the leaders of our municipality. They talked me into

accepting the offer. At first, father and mother were against me leaving the *zadruga*. Stipa [the middle son] was too. They had thought that we should have all lived from agriculture. But, I took the job (Ivan Dominković, personal communication: November 20, 2004).

When Ivan took the job and split from my grandfather's *zadruga*, he and my aunt Ana took only one hectare of the *zadruga* land, in addition to 2.3 hectares that Ana brought as a dowry. They thought that with Ivan having a job and being a member of the Communist Party they would not need to cultivate the land. Ivan's salary, in addition to other benefits he enjoyed as a Party member⁴⁴ was expected to be enough to support them.

The village cooperative Ivan helped establish was different from the *kolkhoz* because it did not require its members to sacrifice their private ownership or their yields. In the beginning, its founders were not sure of the cooperative's purpose, so at first it only functioned as a farm store and a bar. As such, it was not very popular among the farmers, partly because its purpose and direction were unclear and also because the bitter memories of the failed *kolkhoz* were still fresh. However, in 1952, the cooperative chose a clear direction by forming relationships with farmers through agricultural production contracts. The first contracts were with farmers interested in producing sugar beets, wheat, soybeans, maize, and rapeseed. With this more defined goal, the village cooperative started to attract more farmers who wanted to sell their produce (Ivan Dominković, personal communication: April 15, 2004).

⁴⁴As the Party member, Ivan had a railroad pass that allowed him to travel anywhere in the country for a reduced price. He also received stipends that supported three out of his five children through college. The other two children did not desire to have a college degree. Also, after the children finished school, they were able to find employment, which was known to be easier for Party members and their families.

Similar cooperatives to the one in Štitar were formed in Županja and the other villages of the district. As a result, in 1956, the Štitar cooperative established a relationship with the Županja cooperative and that entity became known as *Napredak*. Although it was called a village cooperative, *Napredak* was in fact a state-owned company whose role was to form production-based relationships with farmers, to supply them with input materials, and to provide a guarantee to buy their entire surplus. *Napredak*'s manager was located in Županja and its members were from all 15 villages of the Županja district (Ivan Dominković, personal communication: April 15, 2004).

Interestingly enough, *Napredak* received some land from the state-owned land fund that was created from the expropriated landholdings. In order to cultivate large blocks of land, the cooperative employed local landless people. It also confiscated some machinery from the wealthiest farmers and made it available to all the members, in addition to the machinery supplied by the Županja sugar refinery. In addition to renting machinery like wheat harvesters to the farmers, *Napredak* sold them inputs such as seeds, fertilizer, and pesticides. The farmers were able to pay for these inputs later, after they had harvested and sold some or the entire yield. Farmers who contracted their production were considered members and, as such, paid an annual membership fee. That money was then used to fund loans to other collective members (Ivan Dominković, personal communication: April 15, 2004).

As to be expected, in the beginning, farmers hesitated to enter into cooperative agreements with *Napredak* for various reasons. Some did not believe in the cooperative relationship while others were put off by the fact that *Napredak* was forcing its members to use mineral fertilizers to increase their yields. Some farmers refused to invest money

in mineral fertilizers despite their small yields which were often no more than 750 kilograms of wheat per hectare (Manda Vincetić, personal communication: June 20, 2004). However, it did not take long before even the most stubborn individuals understood the relationship between mineral fertilizers and higher yields (Ivan Dominković, personal communication: April 15, 2004).

Soon after the introduction of chemical fertilizers and pesticides, farmers began to notice less beneficial effects in their fields such as new pests, diseases, and weeds. Manda Vincetić remembers when she found the first potato beetle. "It was right around the time when fertilizer was being introduced" (Manda Vincetić, personal communication: June 20, 2004). After she found one, she kept finding others. *Napredak* wanted everybody who found a beetle to record it with them, which is how Manda's father became a member of the collective, even though he continued to refuse to apply fertilizer in his fields. *Napredak* gave the farmers a powder with which to spray the beetle, but the powder had an odor, and the sprayed potatoes took the same odor. Manda said "that year we had to throw our potatoes away" (personal communication: June 20, 2004). These changes in the fields were not unusual. Netting also found that a change in cultivation practice inevitably brings changes to the look of the fields (1993:34). What weeds and parasites occur in the fields depends on what cultivation practices are used. For instance, some weeds indicate fertility decline and a need for manuring the fields. Moreover, some weeds occur with deeper plowing, and some parasites can only be controlled by deep plowing (Netting 1993:34). Despite these downsides, the economic benefits of the fertilizers' use soon overcame the less beneficial ecological aspects of their application.

The contract production model allowed many Štitar farmers to accumulate wealth and to prosper in farming. Market demand and the guaranteed sale of sugar beets, wheat, and soybeans served as incentive to those farmers who owned enough land to convert part of their fields to market-oriented production. Having a place to sell everything they produced allowed farmers to continue diversifying their production and to make a reasonable living on less than 10 hectares. As they continued to prosper, they found they had enough savings to purchase their own machinery and wean themselves from some of *Napredak's* services.

After the fall of socialism and the privatization of what were formerly state-owned companies, *Napredak* went through a transformation as well. Today, the collective no longer provides rental equipment to farmers, because the farmers started earning enough money to buy their own tractors and additional machinery. It continues to contract with the farmers for production and sales and it still sells farming supplies. Most farmers today contract only their sugar beets and some of their wheat production. Maize and most wheat are mostly produced for subsistence, with surpluses sold among themselves (Ivan Dominković, personal communication: April 15, 2004).

Napredak has not yet been privatized and is still run by the state. The absence of privatization is not the only factor that causes difficulty for the company's business. The introduction of the market economy put *Napredak* in competition with two other farm supply stores and two milk collectors. These new stores attracted part of the *Napredak* clientele, primarily because of the poor business stance the *Napredak* had taken toward the farmers. Unethical behavior of the local employees made many farmers feel like they had been deceived a number of times. For instance, the company does not always pay

cash for the farmers' production, but instead offers store credit, thus essentially forcing farmers to purchase supplies for the next season from the store. Often these supplies, such as pesticides, are out-of-date, have been stored for too long and became hard to work with, or simply cost less elsewhere. Being unable to receive cash for their produce and to shop for cheaper supplies, farmers feel forced to buy poorer quality goods at a higher price. Over the years, this has led to a great deal of animosity and distrust amongst the farmers not only toward *Napredak*, but also toward the local government who does not punish such unethical business behaviors.

The negative experiences with *Napredak*, combined with the fact that it is a remnant of the now unpopular communist regime, have resulted in the farmers hesitating to form co-ops, even though the policy administrators strongly encourage them as a way for small-scale producers to enter the European market. However, since insufficient yield production made it more difficult for the Štitar farmers to enter the market and since they have received inadequate prices for their produce, Štitar family farmers are now realizing that they will have to change their production goals. Even with the subsidies they receive, they are often unable to simply cover the costs of production. (I further elaborate on this point in chapter seven). Interestingly, co-ops are being successfully formed in other parts of the country, but this initiative is still lacking in Štitar. The Croatian Ministry could choose to implement an agricultural program through which it could allocate money to raise awareness of the importance of farming co-ops and aid their establishment. However, for a number of reasons that are discussed in chapter eight the attention of the policy administrators and the EU funding has been directed elsewhere.

Unlike *Napredak* that is still operating, albeit with an uncertain future, the *Poljoprivredno dobro Županja* went bankrupt. Some of its land, once expropriated from private owners, was awarded to soldiers who fought in the last Balkan War (1991–1995). These individuals are obligated to cultivate the land and not lease it to other farmers. However, many do collect rent as a supplemental income to their military retirement. Some land that used to be cultivated by the *Poljoprivredno dobro* has been returned to individual owners and many other farmers are still waiting for a court decision to get their land back. Another part of the land is available to rent to "serious" farmers who want to cultivate more land and produce what the market demands. These points are further elaborated in the following chapters.

In the end, it could be concluded that the communist's ideas of collective ownership worked only as long as the regime. The land reforms in Slavonia and Baranja, whose goal was to form large collective farms with highly efficient and mechanized agriculture, were never successful, despite the communists' claims to the contrary. Rather than being profitable as the communists presented, the large state-owned collectives accumulated debt, which in the early 1990s brought them to bankruptcy. On the other hand, those family farmers who used machinery, and in some cases took outside employment, but never received financial assistance from the communist government, continue to exist. Once again, these "smallholders persisted in choosing to acquire land and to cultivate, even if only on a part-time basis, even when they have other occupational options" (Netting 1993:330).

Deagrarianization and depopulation in socialist Yugoslavia

One last political program of the communist regime left to explore is related to deagrarianization and deruralization efforts that went along with agrarian reforms. This program, coupled with the reforms, was expected to move rural people away from their land, in order to make it available for the national collectives, and toward non-agricultural employment in industry, which would altogether help improve the economic situation of the Županja district and all of Slavonia.

As the communists did not expect, the effects of deagrarianization and depopulation programs varied across the country's regions. Apart from the Županja district, whose industrialization between 1948 and 1971 resulted in a population increase, the majority of villages in Slavonia and Baranja saw population decreases (Panjković 1983:277). The intensity of population change varied among the villages, depending on the geographical location, the state of agriculture, and other aspects of economy, size, and infrastructure. In general, the depopulation process had its greatest impact on villages smaller than 2,500 people, with the exception of the villages, such as Štitar, located near urban or industrial centers. The main reasons for depopulation were the inability of the smallest landholdings to sustain a whole family, poor living conditions in rural areas, unstable financial conditions, social insecurity, and an increased chance for employment in urban centers (Panjković 1983:279). The agrarian reforms and colonization only increased labor supply above labor demand, which then forced many people to migrate abroad from most of the Slavonia and Baranja villages.

Another occurrence that the communists did not anticipate with their deagrarianization program was that people who took employment continued to cultivate

their few hectares of land, a continuation of their allegiance to diversification. That meant that instead of relying only on their employment income, as the communists expected, these people continued to farm. Consequently, some farming households transformed into mixed households, in which agriculture was performed along with a full-time employment (for the ratio of mixed, agricultural, and non-agricultural households see Table 4.4, page 345).

The reasons why these people continued to live in the rural areas and to raise animals as means of earning additional income are few. One reason is that most of the rural work force was low-skilled and thus received salaries that did not allow them to afford living in the larger cities or living off employment only (Urbanistički Institut SR Hrvatske 1979:43). In addition, part-time farm work has always provided some food, which, coupled with an opportunity to earn income off farm, allowed the rural inhabitants to make ends meet. Also, off-farm employment was a necessity for some families, especially for newcomers who did not own much or any land, as well as for those individuals who left the *zadruga* with not enough land.

Having other occupations in addition to farm work has always been a part of the Štitar smallholders' viability and is what makes them similar to the smallholders Netting describes. They all "persist in choosing to acquire land and to cultivate, even if only on a part-time basis, even when they have other occupational options" (Netting 1993:330). When studying the prosperity of Štitar farmers, what becomes clear is that access to arable soil is often the best guarantee of a reasonable livelihood and the long-term security of the household. Unfortunately, dedication to farming on the part-time basis and household income diversification are seen by the current policy administrators as a

limitation to creating competitive farms. The Croatian policy administrators claim that the farming sector needs to restructure and that only those individuals who fully commit to farming will be able to compete on the European market. (I return to these issues in chapters seven and eight).

Events in the late 1980s and 1990s

The events that followed after Tito's death in 1980 reversed the general path of industrialization and agricultural modernization in Croatia and especially in the Županja district. Tito's Yugoslavia was a federation of six republics, and during his lifetime, the communist government kept tensions among the country's various ethnic groups in check. After Tito died, the presidency of the country was held by representatives from each ethnic group, who took turns as head of the government. However, this model did not work for long as the six republics had different ambitions and agendas. The leaders of Slovenia and Croatia began to press for a looser confederate arrangement of the Yugoslavia states, or even for their full independence. As the two most economically advanced Yugoslavian republics, their citizens were tired of paying taxes that were allocated to the less economically prosperous regions of Yugoslavia. They sought to tie their economic fortunes to those of their western European neighbors. On the other hand, the Serbs refused to tolerate the idea of succession, because it not only meant a loss of tax revenues, but it also meant a loss of territories outside of Serbia that were primarily inhabited by Serbs. They refused to support the ideas of succession without redrawing the borders in ways that allowed for the unification of all Serbs, which meant the parcelization of Bosnia and Croatia (Rothschild and Wingfield 2000:258–263).

The Serbs had always disliked Tito's internal borders of the Yugoslavian federation and thought of it as threatening their ethnic nation. Serbs' discontented with their position in Yugoslavia was expressed in a memorandum published by the Serbian Academy of Arts and Science in 1986. In this memorandum, the Serbian scholars enumerated abuses of the Serbs in the postwar Yugoslavia and expressed "complaints about the threatened status of the Serbs in Croatia" (Rothschild and Wingfield 2000:259). This memorandum "alarmed the Slovenes and Croats, who perceived it as reflecting a Serbian desire for hegemony" (Rothschild and Wingfield 2000:259). Indeed, Milošević, who was elected a president of Serbia in 1987, in every way possible fueled fears among Serbs domestically and outside of Serbia, while mobilizing support for his nationalist ideals of creating a "greater Serbia" on the international scene. When Croatia and Slovenia expressed a desire to succeed, Milošević presented it among international friends of Serbia as a justification for the wars he waged first on Slovenia and then on Croatia.

The response of the Croatian elite to Milošević's actions was far from proper. Not only did Tuđman, the Croatian president at that time, fail to acknowledge the minority rights of the Serbs in Croatia, but he also promoted the idea of an independent Croatia in which only Croatian nationalities would become citizens and everyone else would be treated as minorities with fewer rights. To make matters worse, in some villages in western Herzegovina which were inhabited by the Bosnian Croats and which had a historical importance in serving as a recruiting ground for the Ustaše during WWII, the Ustaše symbols were revived in order to express support of the Croatian succession and the homogeneity of its population. The revival of symbols of the movement that was

responsible for killing of Serbs during WWII only increased fears among the Serbian minority and helped Milošević gain international support for his territorial pretensions in Yugoslavia (Rothschild and Wingfield 2000:292–300).

As soon as Slovenia and Croatia proclaimed independence in July 1991, Milošević, with the support of the Yugoslavian People's Army (JNA), launched a war on Slovenia. Since Slovenia did not have a large Serb population, the JNA was pushed out of the republic in ten days, after which the war moved into the Croatian territory. By April 1992, the Serb rebels occupied 1/3 of the Croatian territory⁴⁵ and "virtually cut the link between the Croatian north and its Dalmatian coast in the south" (Rothschild and Wingfield 2000:293). It took the following three years and numerous failed tries by the international community to stop the conflict peacefully, before the Croatian forces recaptured the enclave of western Slavonia and the Krajina region. Vukovar, however, remained under the Serbian control until 1998.

Needless to say, the war left Croatia with a variety of difficult economic, ethnic, and political issues. It badly damaged its budding free market economy, as production declined and unemployment rose. It deepened gaps in economic development and the standards of living between the capital and the peripheral regions, one of which is Slavonia. It left the country with 250,000 Bosnian refugees and people who were forced to leave their homes in the Croatian occupied territories. These people were left to the financial care of the Croatian government and the taxpayers for many years after the war was over. Many of them do not desire to ever return to their place of living before the

⁴⁵The occupied territory included Croatian regions where Serbs were a majority population: eastern Slavonia and Baranja on the Serbian border and western Slavonia and Krajina on the Bosnian border. From these occupied territories, the Serbian National Council created the Serbian Autonomous Region of Krajina and declared its independence from Croatia.

war. On the other hand, Croatia has been under strong pressure from the international community to allow the return of Serbian refugees who left their homes in Croatia. Lastly, numerous mined fields left all over the country still need to be de-mined, a process that is very costly and time consuming.

Apart from the economic and ethnic issues, the legacy of Tuđman's nationalistic ideology continues to haunt Croatia to the present day. The offensive launched by the Croatian troops, which was supported by the West, to free the Croatian occupied territories was later interpreted by the international community as ethnic cleansing of the Serbs. Also, because Tuđman died before he was able to explain some of his war decisions to the International Criminal Tribunal for Yugoslavia (ICTY), his wartime agreement with Milošević to geographically split Bosnia in half has not yet been explained. Making a deal with Milošević indicated that the Croatian elite also had territorial pretensions in Bosnia, which made Croatia an aggressor in Bosnia in the eyes of international community. A few Croatian generals are still being trialed for these crimes.

Ten years after the end of the war, Croatia is still improving efforts to encourage the repatriation of refugees. The country has established a working democracy and is moving toward creating a stable market economy. In 1994, it introduced its own currency, the *kuna* (or HRK), which replaced the Yugoslavian *dinar* in a ratio of 1:1000. This aided in keeping the inflation rates at low levels, but it was not enough to assure stable prices. Currently the Euro is used, and prior to its introduction the German mark was used as a currency in various transactions and a general instrument of savings. At the moment, unstable production growth and weakened or uncompetitive industries

continue to keep high unemployment. Tourism is one part of the national economy that has recovered from the war more quickly than industry and agriculture as Croatia is recognized as one of the most desirable tourist destinations, due to its unique coast.

Another struggle for the Croatian economy has been the fact that trade relations with the other former Yugoslavian republics have not risen back to the levels that were present before the war. Instead, the country oriented its trade toward the EU, which in return is making an effort to open its markets to goods from Croatia and other south Balkan countries.

One of the largest troubles for Croatia is caused by the poor internal reforms that were put in place after the fall of communism. After they were elected to power in 1990, the Croatian governing elites—at that time the Croatian Democratic Party—promised the electorate slow economic reform in order to prevent widespread unemployment.

However, rather than improving economic welfare,

slow reform protected and enriched communist-era managers, whose inefficient firms should have been restructured or forced into bankruptcy. Often, money poured from the state budget through these enterprises straight into the managers' pockets. Privatization became remarkably corrupt, with governing elites handing out state property to economic cronies for a fraction of its actual worth (Vachudova 2003:145).

Nowhere is this prevalence of the selfish interests of individuals with positions of power seen better than in Croatia's peripheral regions, such as Županja. Not only has industry suffered because of the economy and corruption, but the local agricultural sector continues to languish as large tracts of land of the former nationally owned collectives continue to lay uncultivated. A great deal of work remains in resolving property rights and ownership issues, which could assist in returning some land to its rightful owners, as

well as in gaining control over corruption. The efforts that have been made in Županja and what work remains to be done is described in the following section.

Županja after 1990

After Croatia gained independence from Yugoslavia in 1991, a new regional partitioning was created with the goal of decreasing the number of local government units. The Županja district was dissolved and the majority of its villages became municipalities. Štitar, however, lost its municipality autonomy and became a part of the Županja Township,⁴⁶ which is one of the 26 administrative units in Vukovar-Sirmium County. There are four towns in the County—Vukovar, Ilok, Vinkovci, and Županja—each of which forms a local government unit with more than 10,000 inhabitants. The local self-governing unit for the Županja Township includes the settlements of Štitar and Šlajs, which together make up an economic and a social unit. In 2001, Vukovar-Sirmium County had a population of 204,768 people, living in 66,977 households (DSZ-SLJ 2004:61). The average population density of the County was 84 people per square kilometer, which was above the national average at 77.5 persons per square kilometer (MPŠiVG 2005:34).

Economically, the region of the Vukovar-Sirmium County is still considered to be among the weakest in the country. The county population has a high labor contingent (15–64 years old) of 66 percent, but it still has among the highest unemployment rates of

⁴⁶A town is a local government unit and comprises more than 10,000 inhabitants. It represents an urban, historical, natural, economic, and social unit. As a local government unit, a town may also comprise suburban areas which together with the urban area constitute an economic and social entity" (MPŠiVG 2005:6).

all the counties (Programme (sic) Management Unit Vukovar-Sirmium County 2004:11) (for unemployment rates see Table 4.5, page 346). Županja owes its high unemployment rate as much to the long-term consequences of the war in the 1990-ies as to the poor privatization processes that followed. The selfish interests of business owners and leaders not only brought local industry to the verge of bankruptcy, but they also brought the local bank to an end. The loss of the Županjska Bank and the poor privatization efforts led by the politicians in Zagreb created antagonism between the local people and Zagreb. Even today, many people express their discontent with the government in Zagreb for allowing unfit individuals to buy Županja companies and bring them to bankruptcy.

Poor privatization was not only difficult on the economies of the Croatian peripheral regions but it also affected the population structure. The general national trend shows a decrease in the rural population between the last two census periods, from 45.7 percent in 1991 to 44.4 percent in 2001 (MPŠiVG 2005:14). The age distribution of the rural population in the same period moved toward an older population. War and the post-war transitional difficulties in all spheres of economic and social life further aggravated the demographic status of the Croatian villages. This was also coupled with a market exodus of the mostly younger and more vital population and with depopulation processes that have been occurring over the last thirty or more years (MPŠiVG 2005:14). Another negative structural change in the rural population is the decrease in the active agricultural population⁴⁷ (see Table 4.6, page 346), as well as a decrease of younger age groups and

⁴⁷Agricultural population includes all persons whose occupation, according to the National Classification of Occupations, can be found in the group “skilled agricultural and fishery workers” as well as in the group “elementary agricultural, forestry and fishery workers” and all persons they provide for (DZS-RH-PS 2001).

an increase of elderly age groups participating in agriculture.⁴⁸ Why do young people flee from farming? A few reasons come to mind: the currently unclear direction in which agriculture is moving, the general low levels of appreciation for farming, and better career opportunities in Zagreb and other larger cities in Croatia.

Summary

While continuing to explore villagers' behaviors during previous regimes as related to my first research question, the majority of this chapter focuses on the rise and fall of the socialist regime and its ideologies that affected people's behaviors, the rural landscape, and present farming practices. While describing several regimes that come to power in Croatia after the awakening of national identities in western European countries in the early 19th century, I illustrate the ways in which farmers adapted to various challenges. Specifically, I describe how the agrarian reforms and colonization implemented by the Serb-oriented Kingdom of Yugoslavia and the Croat-oriented NDH affected Slavonian rural areas. The remnants of these short-lived political powers were an increased number of very small farming households and an ethnically mixed population in the Slavonian villages.

In addition, the programs implemented by the communists greatly and forever affected the economy and agriculture of Slavonia and Županja region specifically. Colonization, industrialization, deagrarianization, and depopulation programs combined with land reforms were instituted with the goal to create economic advancement in

⁴⁸In the early 1990s, the percentage of young active farmers was as low as 7.7, whereas almost one half (46.4 percent) of active farmers were aged 55 and more (MPŠiVG 2005:15).

Slavonia by industrializing it and bringing its agricultural production to its maximum potential, particularly through the use of nationally owned collectives. For instance, industrialization of the area created non-agricultural job opportunities for colonizers and farming family members who exited the *zadruga*. Some of these individuals were able to find employment in one of the Županja factories or on *Poljoprivredno dobro*. Others took employment in western European countries. Industrializing the region also resulted in increasing state employment, but not in removing people from agriculture or from living in the villages, as the communists had hoped. Instead, farming families started to diversify household incomes between agriculture and employment as a strategy of adaptation to the new circumstances.

In addition, the communists' land reforms contributed to actually increasing the number of small landholdings between 2 and 5 hectares and decreasing the number of landholdings larger than 10 hectares. Another contributing factor to the creation of small fields were traditional rules of inheritance, which I discuss in the following chapter. Thus, land reforms in fact contributed to furthering field scattering. While communists and the current government view such field structure as a barrier to reaching the full potential in agriculture, for Štitar farmers, cultivating scattered field has always been a strategy of reducing risk from ecological disasters.

Other political structures created by the communists included collective ownership of machinery and the formation of cooperative relationships between the local farmers and the processing industry. Through these production relationships, the communists introduced mechanization, fertilizers, and pesticides to the family farmers. These inputs increased yields, which allowed family farmers to produce more surpluses, to increase

their monetary gains, and to gradually buy their own machinery. As mechanization took over, less labor was needed to farm, which caused more *zadruga* to split and divide their landholdings. Netting notices that "the composition and structure of the household group varied with changed circumstances of production" (1993:6). Part of the Štitar farming labor force found themselves in non-farming activities, in addition to continuing to farm their small landholdings. In this way, Štitar smallholders adapted to the current circumstances and continued their household viability. As I suggest in the previous chapter, they changed their household size and composition as a response to cultivation techniques, farm size, and especially the labor needs of the agricultural operation. However, this sort of understanding of viability is typically ignored by the national and international agricultural policies.

At the end of this historical ecology overview, I conclude that the adoption of mechanization and the continual improvement of practices in order to meet the changing political and economic environments allowed Štitar farms to survive and to continue to be an appealing livelihood for the successive farming generations. The following chapters present the current state of agriculture. What challenges are the Štitar family farmers facing? How do the Croatian policy administrators perceive the state of farming? Chapter five explores the role of traditional rules and behaviors in securing viability for the Štitar farmers.

5

Prosperity and economic security

Rules of land inheritance, arranged marriages, the individual's position in the household hierarchy, and the division of labor are traditional elements that secured the smallholders' continuous existence. This chapter's opening story continues the history of the Dominković *zadruga* as told by a woman who married into the family. Her narrative not only describes some of the important traditional rules and practices, but also offers a deep understanding of the value of marriage and the important roles of women in securing farming income and property, taking care of the elderly, raising children, and continuing the lineage.

A split of the *zadruga* of Marka Dominković, *kbr.* 79

After the split of the *zadruga* of Đure Dominković in 1905 or 1906, Marko and Franca Dominković moved into the house in Gorjanski Kraj, which was built for them by the *zadruga* before the split. It was a large house, with six windows facing the street, divided by an *anjfor*. Marko and Franca continued to farm with the help of their five children: Nikola, Marijan, Ivan, Jakob, and Kata. When Nikola grew up, he married and moved to his wife's family house, Benaković. Marijan also married a few times and lived in a little house in the same part of the village as Marko and Franca. When Ivan and Jakob married, they at first continued to live in the *zadruga* house. Ivan married Kata

from the Oršolić house, who bore him four children all of whom died. Jakob married Martina from the Gašparović house and had two sons, Marko and Antun. When Marko grew up, he married Manda (my storyteller from chapter three) of the same Dominković lineage, but they were cousins three times removed, so it was acceptable for marriage. Antun married Kata from the Lukačević house (Ana and Manda Dominković, personal communication: February 19, 2005).

When I met Kata, she was a widow living with her youngest son Jakob, who was single. Her round, pale face was always hidden somewhere in the depths of a black kerchief, which she wore in mourning for her husband. Often, in the midst of her stories, she reached with her large farming hands to her head and pulled the cover off her face. She always had a smile for me, and the more I learned about her life, the more I was amazed that she kept that smile. The inner peace I felt within her during our interactions always drew me back to her for more stories, or just thick Turkish coffee served in a little cup that has seen almost as many years as Kata. Early into my visits, she opened up her heart to me, a total stranger who was willing to listen, and poured forth a wealth of stories about her father, her childhood, her marriage to Antun, and her life in the Dominković household.

Kata was born into the *Šokac zadruga* Lukačević. She told me what she remembered hearing about her father when he was a young man.

He was an heir to a wealthy Lukačević *zadruga*, [which was one of the founding families in Stitar]. He loved a girl from the village whose family was poor and did not have much land. His mother was opposed to this love and told him repeatedly that a poor girl should not marry into the wealthy *zadruga* house. My father listened to his mother and married a girl she arranged for him. The girl was the only child of a father who owned a lot of land in a neighboring village, Gradište. Marija, my mom, brought 3 hectares of land to my father as a wedding dowry, but he never was happy in his marriage (Kata Dominković, personal communication: June 8, 2004).

It was not unusual for a young man or a woman from a well-respected and wealthy *Šokac* family to forgo the love chosen by heart and to obey the will of his or her parents to marry an individual of the same rank and with the prospect of inheriting land. Arranged marriage was a way of increasing landholding size.

At first, Ivan and his brother Šima, Kata's uncle, lived together with their families in the *zadruga* and cultivated 20 or so hectares of land. When Kata was in the third grade, in 1944, her father and uncle decided to split up and divide all the *zadruga* ownership. Kata's uncle Šima took half of the land, two cows, two horses, and four sheep. The *zadruga* built a house for him across the street. Today, the descendents of Šima live in that same location. Ivan got 8.6 hectares of land, in addition to 3 hectares of his wife's dowry. The largest parcel of land the *zadruga* owned had a field house on it. The two brothers split that lot also, and Ivan kept the field house since he and Marija took care of Ivan's parents. In the following years, Ivan kept buying more land and increasing his landholding.

Ivan and Marija had six children, three sons and three daughters. The children helped with farm work. They did not attend school for longer than four years because their help was needed on the farm and in the fields. The Lukačevićs never had servants, but did most of the farm work themselves. Occasionally, they hired help. Kata and her sisters went hoeing every day, while the brothers went horse plowing with Ivan. She remembers how quickly she learned to hoe and why. "I was younger than 12 when I learned how to hoe. I had to learn to keep up with the other hoers. Otherwise, they would tease me that crows would come and take me away, if I stayed too much behind everyone else" (Kata Dominković, personal communication: June 8, 2004).

Embarrassing children with similar stories, or criticizing their work, was a way to teach them diligence.

Ivan's family worked hard to cultivate the land they owned. They also raised many pigs and milked many cows. They sold milk to the village milk collector. When the communists came to power and implemented agrarian reforms, Ivan lost a large part of his land. He was allowed to keep only the maximum of 9.8 hectares. The communists also took some of their pigs and cows. The losses hit the family hard. Ivan's goal to provide enough land for his three sons fell through. What he could not have known was that two of them would die young and unmarried and that his land was going to be split between his one remaining son and his daughters. Only one other of Kata's brothers married and established a household in another part of the village. The rest of her siblings did not marry because they, as their father did before them, heeded the words of the grandmother who told them that no one was good enough for them.

At the age of 18, Kata married Antun and entered the *zadruga* of Jakob Dominković, *kbr.* 79. They lived there with two other couples—the elderly couple of Jakob and Martina, and Ivan's brother Marko and his wife Manda. The house they lived in was a typical *Šokac* house. It was set back from the street and L-shaped. In front of the house was a nine-meter long room where Jakob, Martina, and the grandchildren slept. The young couples slept in the *kučari*, or sleeping quarters in the rear part of the house. The attached farmyard also contained a summer kitchen and a smoke house.

Kata's life in the Dominković *zadruga* was difficult from the beginning, because Antun was not pleased to marry her. She got pregnant before marriage and when she told Antun, he refused to admit fatherhood. Only after Kata took the baby for blood analyses

and threatened to take him to court with the results did he decide to take her as his wife. However, he did not want to have their first-born child living with them, so Kata was forced to leave the girl with her unmarried sisters and brothers. Shortly after she was born, the girl suffered an infant paralysis and eventually died. In return for taking care of her and Antun's daughter, Kata gave up her part of land inheritance in the name of her siblings. Unfortunately, giving her first-born away was not Kata's only misfortune.

Antun never loved her or respected her as a wife. Soon after they married, he started an affair that lasted until he died in the early 1990s. It all started when a village woman came into their yard one day, asking Marko, Antun's brother, to supply her with firewood. She really was interested in starting an affair with Marko, but when he refused to supply her with wood she asked Antun. Antun did not refuse her. Their love affair was not a secret to anyone—Antun's family, neighbors, or the whole village, including the paramour's husband. They all pretended that it was not their business. From then on, not only did Antun bring her firewood every year, but he also brought her building material for the house she built for her and her husband. Her husband never acknowledged her affair with another man. For many years, she continued to come into the Dominković's house and work in the fields with them. Kata remembers that

she was willing to work. She was 7 years older than I. She tried to boss me around my house and my farm, but I did not take it. I tried to talk with Antun about it and to bring him to sanity. But, he did not want to hear me. He hit me on several occasions, after which I quit telling him (personal communication: June 8, 2004).

In 1963, when Kata and Antun's youngest son Jakob was born, Marko and Manda announced that they were leaving the *zadruga*. The *zadruga* did not have many animals to divide. They had four horses, so each brother kept a pair. Marko and Manda left the *zadruga* house and moved to the house that belonged to his paternal grandfather. Antun

and Kata, together with Antun's parents, remained in the original *zadruga* house in Gorjanski Kraj and continued to cultivate land. Antun and Kata took care of the parents until they passed away, after which Antun inherited the house and some land. It was actually Kata who took care of her husband's parents, despite the way they felt about her.

They never loved me, except his father, old Jakob. His grandfather did not love me either. My father-in-law was the only one who helped me around the house. He even helped me with children when I had to go into the fields. He was always good to me. Before he died, he told me with compassion: "Your life has been difficult Kata" (Kata Dominković, personal communication: June 8, 2004).

Kata found some escape from her unhappy life in walking to the field house every morning, where she tended animals and hoed fields, sometimes alone, and sometimes with other family members. She loved working in the fields and being outdoors. Sometimes Antun and his mistress came and hoed with her for a while. At the end of many of these days, Antun and his mistress rode back into the village on the carriage, while Kata walked back home, refusing to ride with them. She tried to leave Antun a few times, returning to her father's house, but every time she returned to Antun because of their children. Eventually, she bravely accepted her life for what it was. She committed herself to rearing her children and doing her farm chores. Other family members left her alone. She took care of the farm, the fields, the household, the children, and Antun's parents as long as they lived. All these obligations kept her busy and she did not have time to despair or feel sorry for herself.

After Kata buried her in-laws and her husband, her life finally took a peaceful course. Two of her children were married and her youngest son Jakob took care of her and the farm. He became a household head and used his authority to throw his father's mistress out of the house when she continued visiting even after Antun's death. Kata

inherited the largest part of her husband's land, and the rest was split between their two sons, Josip and Jakob. Josip inherited 2.3 hectares of land and a lot on which he built a house. The rest of the 8 hectares were split between Kata and Jakob. Kata owns five-eighths and Jakob owns three-eighths of the land. Jakob cultivates all 8 hectares and, since he remained in the house to care for his elderly mother, he will inherit the house and her portion of the land. Josip cultivates his part of the inheritance in addition to finding odd jobs here and there. He and his two cousins are also providing a life-long service to their aunt Blaženka, the only living sister of Kata. After Blaženka passes away, Josip will inherit one-third of her land (Jakob Dominković, personal conversation: July 21, 2004).

Introduction

Stories told by Kata Dominković about her father Ivan and her husband's family and about some important unwritten rules and practices allow us to gain a better understanding of the dynamics of domestic developmental cycles. The unlimited hospitality and trust this woman gave me enriched my research with a deeper understanding of the value of inter-generational respect, marriage and motherhood, from the villagers' perspective. This chapter describes these meanings and offers an understanding of how traditional practices, such as land inheritance and husband-wife and parent-children relationships, continue to assure the survival of the Štitar smallholders. This is the theme of my second research question.

In this chapter, I demonstrate that ownership of land tenure rights, autonomy in making agricultural decisions, and availability of family labor continue to provide enough incentive for Štitar smallholders to stay in the village and on the land, even when it

provides only a part of the food and some cash for other goods they need. I also argue that the age of a farm manager is not a limiting factor to farm modernization or prosperity. Instead, I emphasize the benefits of the skill and experience of elderly farmers for the young managers, who then can run the farm by combining traditional and scientific knowledge. Lastly, I make a point about the irreplaceable role of women on the farm and I illustrate how they value their roles as selfless mothers more than their happiness as wives. These and other traditional practices I describe have endured for many centuries and many of them have remained unchanged in the face of changing political ideologies.

Rules of land inheritance

As presented in the above history of the Lukačević and Dominković families, the *zadruga* divided their landholdings by partible inheritance among many sons (or daughters in the absence of the sons) of the owner. Such a practice divided larger field plots into smaller fields and thus contributed to the present pattern of small and scattered fields.

Although partible inheritance continues to be the primary method of dividing land among heirs, Štitar smallholders have employed methods of controlling the prosperity of their households. One such method is arranged marriage. Parental pressure on children to marry a spouse with more land was especially practiced among the *Šokac*'s large landholding families, such as the family of Ivan Lukačević. Occasionally, however, "the parents' preference that their son or daughter marry a spouse with wealth in land and cattle might run contrary to the desires of the younger person, sometimes resulting in

lifelong celibacy for the child" (Netting 1981:175), as it happened with Kata's three siblings. Celibacy is also a way of keeping the land undivided.

Another way of controlling land division is to direct some children toward non-farming opportunities. Netting notices that

the continuity of the smallholder households without land fragmentation or expanding population was ensured by inheritance rules and a system of subordinate social statuses that channeled noninheriting children into wage labor or nonfarm occupations (1993:98).

Contrary to the cases of some smallholders Netting describes, Štitar's rules of land inheritance are less strict and less limiting regarding who can and who cannot inherit land. In Štitar, usually but not exclusively, the youngest son remains on the farm. How much land he inherits depends on the will of the parents. If a husband precedes his wife in death, she inherits the larger portion of the land (as did Kata), and the rest is divided among the male heirs. A male heir who takes care of the mother until she passes away inherits her land, unless she specifies it differently in her will. Other siblings often choose a different career, in addition to cultivating their few hectares of inheritance. Presently, as non-farming income opportunities are plentiful and farming is not perceived as a desirable life-style, children with non-farming careers often give their portion of inheritance to their mother or siblings for whom land is a primary income source. This practice somewhat controls fragmentation of land.

In the absence of male heirs, daughters inherit land as a dowry, in addition to bringing the traditional dowry of sheets, pillows, and linen cloths, as it happened with the mother of Kata Dominković. Similarly, Manda Vincetić had two sisters, and after their father passed away, the mother divided the land among the three of them. Manda inherited 4 hectares, which was almost as much land as her husband brought into their

marriage. Since Manda's sisters married elsewhere, she and Marko remained to care of her mother until she passed away, at which time they inherited her house where they live today. Built in 1912, their house is one of the oldest in the village. Marko and Manda also cared for her aunt who lived next door and inherited her lot as well. On this lot, they built a house for their second oldest son, Martin, who is a farmer (Manda Vincetić, personal communication: July 5, 2004). After their youngest son decided to become a musician, their middle son, Stipa, took over their family farm. They have one other son who also chose a non-farming career and gave his part of the inheritance to his two farming brothers. Since Stipa and his wife are taking care of Stipa's parents, they will inherit the house.

It is a common practice for children to serve their elderly parents in exchange for an inheritance. It could also be other family members, like Jakob's brother Josip serving his aunt for some land. In some situations, non-kin care for an individual who does not have his or her own children. Sometimes participants in these arrangements may become dissatisfied for one reason or another, resulting in the discontinuation of the caring service. As a result of this mutually beneficial practice, farmland is passed on from one farmer to another, and even if the transfer is not between persons who are related by blood the land remains under the management of a well known individual, rather than being sold to a stranger.

Not only are material goods passed on from one generation to the next, but so too are ecological knowledge and long-term experience with farm resources and operations. These are important because "knowledge and experience in the use of the land results in higher productivity and greater returns than would accrue to the same land cultivated by a

stranger applying strictly standardized techniques" (Netting 1993:63). Having the ecological knowledge and farming experience, combined with holding tenure to land, provides enough incentive for young Štitar farmers to hold onto their land even if farming is only a part-time endeavor. I noticed that families who own knowledge and land as resources "tended to remain in the neighborhood for generations, while cottagers, landless laborers, and craftsmen were much more mobile as well as being considerably poorer" (Netting 1993:69). The Štitar Book of Births reveals a record of several generations of farmers of the oldest *Šokac* families. For instance, the lineage of Jakob Dominković can be traced as far back as 1772, which makes him a seventh generation farmer. It is this long-term persistence of a farm that Netting uses as evidence of the smallholders' sustainability.

One interesting observation from my village census is the relationship of ethnicity and farm size. More farmers of the *Šokac* origin own larger farms than of any other ethnicity, as presented in Table 5.1. This is so because the heirs of the families who own less land have less incentive to remain in the village and often find it necessary to take jobs elsewhere. This points us to the existence of inequalities among farmers.

Table 5.1 – Joint relationship of land size and ethnicity

Ethnicity	<3.00 ha	3.00-4.59 ha	4.60-8.09 ha	8.10-14.99 ha	>=15.00 ha
Šokci	32	9	30	22	14
BiH	41	14	15	7	6
Dalmacia & Lika	13	3	6	3	2
Other	5	4	0	1	1

Inequality

Differences among smallholders in landholdings, numbers of livestock, household possessions, buildings, equipment, and other measures of wealth indicate the presence of inequality. Due to such inequality, some farms remain viable while others go out of business.

A single family household may grow from relative poverty when an adult couple supports many young dependants to a large, prosperous group with several productive workers. Because families are at different points of their domestic developmental cycles, and because they do not all follow the same trajectory, inequality in wealth is the rule rather than the exception (Netting 1993:12).

As Netting finds among smallholders all over the world and as I observed among the Štitar families, inequality between farms can exist at any point of their developmental cycle, but it is due to life-cycle differences rather than class differentiation (Netting 1993:12–13). For instance, Ivan Lukačević, described in this chapter's opening story, enjoyed the reputation of a wealthy farmer who increased his landholding and who knew how to manage his resources well. The wealth he accumulated was divided among his children, and later grandchildren, and formed several small landholdings. Thus, the Lukačević family went from owning one of the largest farms in one generation to owning several mid-size farms in the next generation. This indicates that situations of relative wealth or poverty are not fixed, but can change in the same generation or among generations (Netting 1993:229–230). The lives of the children are affected differently than those of the parents by the developmental cycle of a household, such as the changing ratio of consumers to workers; demographic occurrences of birth, death and marriage; inheritance of fields; or wages from off-farm employment. The smallholder households'

possessions, landholding size, and other measures of wealth all add measurable differences in wealth.

The splitting of the *zadruga* and the division of their land are economic factors that also act to circulate wealth in the Štitar community. However, such mechanisms that force wealthy individuals to get rid of part of their possessions do not necessarily equalize access to the resources (Netting 1993:229–230). For instance, one Štitar family that split off from the same *zadruga* may have enlarged its landholding, accumulated more wealth, and enjoyed a better reputation than the other new smallholder family.

In addition to land rights and knowledge, a farm's prosperity also depends on the managerial skills of the household head. His specialized ecological knowledge and farming skills allow generations of kin to climb up and to slip down the social ladder. For instance, as is obvious from this chapter's introductory story, Ivan Lukačević was a skillful and well-respected farm manager who increased the landholding size of his farm. Ilija Filipović and Matej Debak are both of the second generation in the village, yet they managed to accumulate wealth which allowed them to climb up the social ladder. Even between the two of them, there are overt differences in how they are perceived by the fellow villagers. The Filipović family's heritage is Dalmatian and, because they assimilated well with the local *Šokci* by accepting their habits and participating in annual village events, many old settlers see them as almost one of theirs. The Debak family's heritage, on the other hand, is Bosnian and they keep more to themselves. Despite his ability to accumulate cash and expand his production volume and living quarters, Matej is not talked about as a wealthy farmer.

The ability of skillful managers like Ilija and Matej, and many others, to produce food and accumulate wealth comes from possessing a right to hold and transfer property and from having family labor available to organize and run the production. Having autonomy in making agricultural decisions, being able to mobilize family labor, and owning land tenure rights are considered by Netting as elements that protect the smallholder from "the assertion of unequal power", allowing them "dominance over the landless and dependent wage laborer" (1993:191). With these resources at hand, Štitar smallholders stubbornly stay on the land even when it provides only a part of the food and cash for other goods they need.

Labor exchange

Labor exchange is another tool that helps a smallholding household manage its resources and incomes. Although family labor is the primary labor source on the smallholding farm, labor demands are often temporarily heavier than what the family can supply. During those times, labor exchange becomes necessary to complete tasks, especially during agricultural bottlenecks. A farming family organizes a work group party, which "plays a major role in certain agricultural and domestic tasks, but people maintain a conscious balance between labor given and received" (Netting 1993:194). Major agricultural tasks that exceed the capacity of the Štitar household labor are manure loading, transporting and spreading, corn and alfalfa storing, pig slaughtering, and so on. Labor exchange events that take up most of a day are usually followed with a meal and drinks. These are reciprocal arrangements. If a farmer takes too long to return a labor

service, or finds excuses too many times not to join work groups, he has a hard time finding help the next time he needs it.

Some people, especially elderly farmers, told me that they do not exchange labor, but rather hire and pay the service, because labor exchange obligations exceed their work ability. However, these were the farmers who cultivated less land and had some type of governmental support available, whether that be child support, a handicap pension, or a pension from one of the western European countries. (In chapter seven I provide an empirical analysis of these different kinds of household incomes). In contrast, most other farmers who own larger landholdings occasionally need extra hands and are active in labor exchange. For them, it is a way to mobilize labor in addition to the available free family labor. Access to free family labor and labor exchange practice are the advantages of the Štitar family farmers over their counterparts in the US, for whom labor costs are, in some cases, as high as 50 percent of the total cost of production (Blake Brown, conference presentation: February 8, 2007).

Percent of time spent in labor exchange among the Štitar households also vary by market involvement, as presented in Table 5.2. Households that are high market-oriented usually cultivate the most land and raise the largest number of animals. The individuals of such households spent 75 percent of their employment time in labor exchange, which is more than individuals of any other household type. Individuals in medium market households spend 13 percent of their employment time in labor exchange, which is notably less than among the individuals of high market households. This is to be expected as these individuals have a full-time job and thus commit more of their employment-related time to their jobs. The low and no market household spend 7

percent and 1 percent respectively of their employment-related time in labor exchange. From the gender perspective, my survey reveals that women exchange labor more than men, except among low market households. This is to be expected since women are typically unemployed and/or at home and on the farm, and available for labor exchange while men are away. The following section describes how labor division contributes to the farm's prosperity and persistence.

Table 5.2 – Labor exchange by household type and sex

	No market			Low market			Medium market			High market		
	%	lower	upper	%	lower	upper	%	lower	upper	%	lower	upper
n	13			10			9			9		
Total	1	0	6	7	2	16	13	6	24	75	49	95
Men	0	NA	NA	8	4	15	8	4	15	72	44	93
Women	3	1	12	4	1	23	60	28	84	83	30	100

Note: The % displays the point estimate of the percent of work time spent in exchange followed by lower and upper uncertainty bounds. Total is just a typical person ignoring gender while men and women refer to the estimated percentages of work time spent in exchange by each gender.

Labor division

In order to perform all of the seasonal tasks on the farm, in the fields, and away from the home sphere, smallholders need to rely on diversified and coordinated labor which they mostly mobilize from a small pool of family workers. The labor division between sexes and ages within the households results in the allocation of different and complementary tasks. Women, children, and the elderly stay at home and care for the animals, while men work in the fields (Netting 1993:67–69). As with Netting's smallholders, the multiplicity of jobs of the Štitar smallholders and their urgency during times of bottleneck suggest that work roles may become indistinct. There are certain practices that are traditionally performed by men, like plowing, manuring, cutting trees, transporting firewood, making brandy, and pig slaughtering, while practices like

gardening, raising children, feeding pigs and chickens, cooking, cleaning, sewing, and doing embroidery are traditionally performed by women. Other tasks, like raking and collecting hay, collecting plums, hoeing fields, tending animals, milking cows, and storing food are performed by both sexes.

This division of labor between men and women does not mean that women cannot plow or that men do not garden or sweep. Indeed, "almost all tasks could be handled by members of the other sex when necessary. When men were working away from the village, women managed the farm on their own" (Netting 1993:67). I observed many Štitar farming women cleaning stables, turning over manure piles, and driving tractors just as well as they prepared meals and tended the children. I also observed Štitar farming men who were keen gardeners and did not hesitate to vacuum, hang clothes, and clean the house—tasks that were traditionally thought of as women's work. These chores, however, were performed by men who cultivated less land and had more free time, or by elderly men who had let their heirs take over the farming and who had a lower opportunity cost.⁴⁹ Full-time farming men rarely had time for household chores. (Chapters six and seven provide a detailed discussion of distribution of labor hours for men and women).

While men only rarely and very cautiously tiptoe into household activities that have been considered women's work, women perform what is considered men's work more openly and more often. There are women who plow fields and who slaughter and butcher pigs. I enjoyed hearing a story told to me by Janja Vincetić, who is originally from Bosnia and married into the *Šokac* family. As background it is important to know that in

⁴⁹"Opportunity cost is defined as the return from any resource in its next best use" (Barlett 1980:140).

Bosnia, women slaughter and butcher pigs. Janja did not hesitate to do the same in the *Šokac* household of her husband. After asking her husband several times to do it and his refusing because he did not have time, Janja grabbed the butchers' knife and, with her mother-in-law's hands to hold the meat, skillfully cut it the way she liked to freeze it. Her mother-in-law, Manda, told her that "women in Štitar never cut meat because they have enough work to do in the kitchen to serve the men who slaughter and butcher the pigs." Janja only smiled at this comment and said that she "would not wait for anyone to cut her meat" (Manda and Janja Vincetić, personal communications: August 2, 2004).

Women also take initiative in running the farm while men are away in the fields, pastures, or field houses. Once farming was mechanized, women became more tied to the home sphere and were needless for work in the fields, which became men's sphere. For instance, while visiting the household of Gabrijel Prelić, I often found his wife Manda and their daughter-in-law Martina at home, caring for the animals and performing other farm chores, while Gabrijel and his son Mato were away for the day. Manda remembers and misses past times when she worked in the fields with Gabrijel all day. After farming became mechanized, her help in the fields was not needed any longer (Manda Prelić, personal communication: June 8, 2004). (Chapter eight further discusses the role of women on the farm and addresses the masculinization of farming in the context of the CAP). The only time Manda goes to the field house now is when their vegetable garden needs attention. The Prelićs tend a large garden at the field house and a smaller one at home. When they go to the field house, Manda and Martina connect a trailer to one of the tractors, collect the children and tools, pack water and food, and drive

to the field house. The children love meeting their grandfather there, where he picks fruits for them and tells them stories about how life used to be.

Figure 5.1 demonstrates the masculinization of farming. It reveals how rarely women of age 15 to 65 in the households I observed engage in plant production activities (for a description of the figure methodology see page 348 and for a detailed list of the activity types see Table 5.3, page 355). The figure includes men and women of only agricultural households (high, medium, and low market-oriented). Among the individuals observed in the sampled households, women spend only about 3 percent of time in plant production activities, and men spend about 10 percent of time. Conversely, women spend about 24 percent of time in performing household-related activities while men spend only 6 percent of time in these activities (women rarely trade, so trade activities are mostly assigned to men). We can also note that gender labor distribution is more equal in animal husbandry. In this way, animal husbandry—as practiced in Štitar—is more intensive in Netting's terms than any kind of plant production. (More details about the intensive animal husbandry are provided in chapter seven). The most time both sexes spend in other activities (individual, social, and work), with men spending slightly more time in those activities than women.

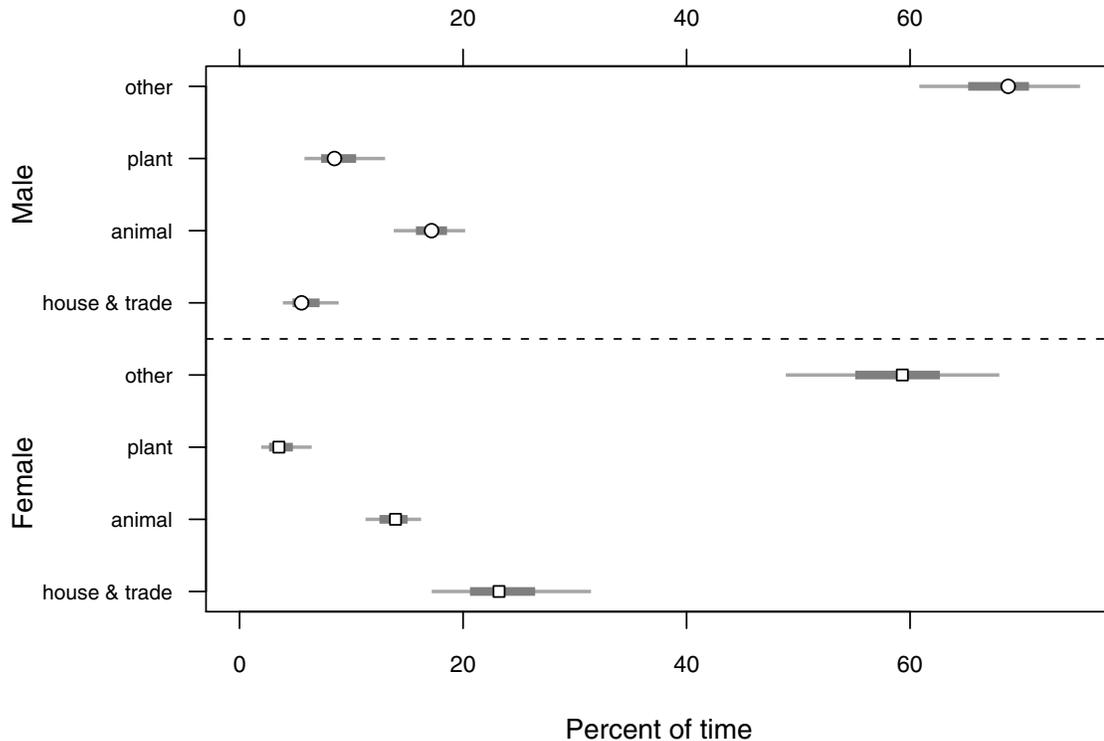


Figure 5.1 – Point and interval estimates for time allocation for males and females in Štitar, age 15–65

Fifty percent (thick) and 95 percent (thin) confidence intervals are shown.

Although rare, there are occasions when Štitar women need to go to the fields. This usually happens when a farmer decides to hoe the field instead of applying herbicide for a second time. This mostly occurs in the sugar beet production where inputs of fertilizer and pesticides are high and farmers try to keep input costs down by reducing the number of mechanized field activities. For instance, during my fieldwork, a farmer, Đuro Miličić, decided to invest more family labor in his sugar beet production than many other farmers. He and his immediate and extended family not only hoed his sugar beets fields twice that year, but they also harvested the beets by hand. Đuro decided to do this because his beet stand performed poorly and he determined that harvesting the roots by hand was the only way for him to stay out of debt. Although, there were other farmers in

Štitar whose sugar beets yielded poorly that year, Đuro was the only farmer who organized manual labor to harvest beets. He was able to find enough labor because he and his family stay active in labor exchange activities. Another occasion when women might work in the fields is to help collect and load alfalfa onto a trailer. However, considering that only 23 percent of the village is larger farmers and high or medium market-oriented (see Table 1.2, page 27), it is uncommon to see women in the fields.

Apart from gender-based labor divisions, households divide labor according to age. Usually, family members with lower opportunity costs, like elderly men, take animals to the pasture or go to the field house daily. Similarly, elderly women stay at home and make meals or care for children, while younger women are engaged in chores around the farm. Netting characterizes such tasks as vital to the smallholder household, although they have a low return to labor (1993:76). I found it to be true in the Štitar smallholders' household economics. For instance, cattle farmers, who had an older household member available to take cows to pasture every day, were able to avoid paying for a herdsman's service. On the opposite side are those farmers who decide to hire a herdsman. (I present the cost that Stipa Vincetić incurred by paying the herdsman for taking his nine cows to pasture in the next chapter).

With such gender and age labor division, a farmer does not have to spread fertilizer and feed animals at the same time. Instead, smallholders I studied divide labor in a way that men's and women's tasks are complementary, with women caring for livestock, cooking and storing food, while men carry on various activities away from the house. In this way, labor division is another practice smallholders use in managing farm tasks and accumulating wealth as strategies of assuring viability.

Household hierarchy

Another mechanism that allows households to persist and prosper is household hierarchy. Among smallholders in Asia and Africa, Netting (1993:81) noticed that the presence of a strong household hierarchy maintains a certain respect for the elderly and subservience of adult children to their parents, which is necessary for developing discipline and a sense of personal responsibility of the future farm managers. In Štitar, every household, agricultural or non-agricultural, has a household head or *gazda*, who is always the oldest male. A young man becomes a *gazda* only when he becomes the oldest male in the house. As long as there have existed *zadruga* there have been *gazde* (Hammel et al 1982). As the *zadruga* split up, each new household had a new *gazda* who again was the oldest male.

The role of the *gazda* was more one of responsibility than a position of power. Filipović (in Hammel et al 1982:8) emphasized the *zadruga* democracy in making important decisions. The *gazda* was not able to undertake any important decisions or sales without the consent of the assembly of other adult males. He only

carried out the decisions of the assembly, assigned the job responsibilities and saw to it that they were executed, made sure that all the members were properly supplied, kept an eye on their behavior, represented the household at the village assembly and in any dealings with the state, acted as host when there were guests, and so on (Hammel et al 1982:8).

As a reward for this position, the *gazda* enjoyed the respect of family members and outsiders. Netting (1993:75) points out a remarkable relationship between the household head and the rest of the family. The household head does not necessarily need to be verbal in his management, as household members often know exactly what needs to be done. Although there are exceptions, many of the Štitar smallholder households I

observed practice a well-defined household hierarchy, and the household members show a high level of personal responsibility. The strength of these household hierarchical relationships, combined with the managerial skill of a household head aids some households in accumulating more wealth than others.

Adam Oršolić is a good example. He is one of the most well respected *gazde* and successful farm managers in Štitar, who brought his farm and his family to prosperity. Adam assigns work to his six sons, four of whom live in the same house. The other two are married, have jobs, and live in the village. They also participate in farm work in the afternoons and on weekends. Adam is not a solo decision maker but discusses matters with his sons. They each have a specialty role on the farm and know exactly what they need to do even without ongoing instructions from Adam. Marin tends the cattle and takes them to the pasture every day. Filip provides agricultural service, in addition to cultivating their fields. Luka stays at home and helps Mira, their mother, in the garden; keeps the farm yard, barns, stables and storage buildings clean; and helps Marin in caring for animals. Šimo, the youngest, also helps with tending animals. In addition, he drives the only car that the three households share and often runs errands for Mira or other family members. Pavo, a machinist and a mechanic by education, makes tools or repairs machinery, and Josip helps with various tasks.

Adam always knows what the others are doing. He is the only one who sometime changes everyone's daily schedule, to pool labor for a different activity, usually during bottleneck periods. During those days, Marin does not go to pasture, Šimo does not do unnecessary errands, and Filip re-schedules service work if he can. Mira as the *gazdarica* and the only woman in the household has some influence on Adam's decisions regarding

the household. Nonetheless, things happen when he decides rather than when she wants them to happen. For instance, in 2004, Mira thought they needed to repaint their house exterior, but Adam thought they needed to build another shed for the machinery and another stable for the cattle. The house did get repainted, but only after the shed and the stable were built.

Combined with the ecological and farming knowledge that Adam and his sons hold, their skill in timing agricultural operations with seasonal climate changes, attention to livestock husbandry, mobilization of household labor, and successful marketing decisions allow the Oršolić's to make an income higher than many of the Štitar households. Their example demonstrates how "the cumulative result of a great many daily choices and calculations shows up in the economic performance of the small farm and the comparative income of the family" (Netting 1993:205). Their landholding size, farming buildings, machinery, paved yard, and purchased houses for each son clearly show their prosperity and the wisdom of their economic choices. As with the Oršolićs, the prospect of inheriting the farm and some land, or becoming a household head creates enough incentive for young men to pay respect to the elderly couple and to provide life-long service to the parental unit, even when there are disagreements. As Netting points out,

because the junior couple could not become master and mistress of the house and farmlands until the older generation were dead or household division occurred, they might be well into middle age before gaining the status of household heads. This 'subservience of adults to their elders' gave the system 'a strong patriarchal flavor', and norms of respect could not alone prevent friction and covert hostility within the household (1993:81).

With Adam keeping his authority in job assignment and farm management, and the sons respecting his position, the Oršolićs get the household and farm work done efficiently and

on time. For their participation and dedication, the sons receive large rewards such as a house or a lot, and small ones like chocolate or ice cream.

What gives rise to the strong commitment of farm managers such as Adam is the will to assure the survival of the farm by maintaining control and passing it on to the next generation. Sociologists and anthropologists who study family farming (Barlett 1980, Netting 1993) explain that with survival as a goal the family must secure farm reproduction in a form that can support the consumption needs of more than one generation at a time. The family farm must support growth and development of the succeeding generation, until they can support themselves. In order to do this, the farm must not only provide for their subsistence requirements, but also for their education and training, and possibly for extended periods of disguised unemployment.⁵⁰ Secondly, the farm must be able to support the older generation long after they cease to contribute directly to the productive activity of the farm (Errington, Barahona and Comont 1995:52). In Štitar, the survival of the family endeavor requires the successful control of the farm and the transfer of the ownership to the successive generations. This transfer must happen in such a way that the farm continues to meet the consumption needs of more than one generation, while maintaining or improving the farmers' standard of living when compared with the non-farming sector. These inter-generational processes of inheritance, succession, and retirement are crucial to the survival of the family farms.

⁵⁰Disguised unemployment is a situation under which productivity of the working force is very low, due to more workers being employed than what is optimally desirable. For instance, if a small plot of land has a maximum capacity to employ six workers and the actual number of workers attached to land exceeds this limit, some of the workers will be disgustingly unemployed. It implies that though some of the workers attached to land appear to be employed, their service is not being utilized to the optimum.

That Adam is an elderly manager of the farm does not seem to limit their farming enterprise in any way, contrary to the belief of the EU and Croatian policy makers. His age does not make the farm tradition-bound as he and his sons have been experimenting with the newest recommendations and scientific knowledge in milk production. In fact, such a household that has a strong farm manager and committed and respectful household members is a more successful smallholder household.

Policy administrators who see elderly farmers as limiting the implementation of modern farming knowledge are apparently unaware of such intricate inter-generational relationships and democratic decision-making that exist among farm family members. Rather than underestimating the managerial ability and lifelong ecological and farming knowledge, I emphasize the ways in which these elderly farm managers bring their farms to prosperity, with the help of other household members. I demonstrate that age is actually not a limiting factor. Instead, I suggest the reasons for rejection of innovations are often external. They may be the result of differences in goals between farmers and policy makers, unclear goals in agricultural politics, the overall difficult state of agriculture in transition, or a lack of trust in national institutions, all of which are further discussed in the subsequent chapters. My research shows that farmers do experiment with new knowledge and that elderly farmers do not prevent such efforts on the part of their successors. In fact, their skills and experience can only benefit the young manager, who then can combine these with scientific knowledge and continue to run the farm, securing the existence of future generations.

It should be clear by now how important household hierarchy is in maintaining a disciplinary authority between parents and children and a sense of responsibility and a

respect for the elderly on the part of the younger generation. It must not be forgotten, however, that just as the farm manager's role is important in this equation, so too is that of his wife.

Role of a woman in the household

A wife of a *gazda* is a *gazdarica*, or a household hostess. Especially in the *zadruga*, a *gazdarica* was in charge of women's work, such as cooking, canning, tending the vegetable garden, and overseeing daughters-in-law. She maintained her position even after her husband's death, as Kata did after Antun's death at which time her son, Jakob, became the *gazda*. The *gazdarica* paid respect to her husband as the *gazda* and other household members paid respect to her as the *gazdarica*. By virtue of sharing all the farming labor with her husband, the *gazdarica* knew what crops were seeded in the fields and what animals were sold. Since men and women worked in the fields together, women knew about the farm as much as men did. Yet, the main responsibility of the *gazdarice* and other women in the household was to take care of the house, children, and animals at home. Today, a woman's role on the farm has changed in a way to allow her to decide whether she will participate in the farming activities with her husband or work for a salary. Some women take employment if an opportunity exists, but most stay at home as housewives and participate in farm work. A few young Štitar women were well known and often praised for sharing responsibility for the farm work with their husbands.

Martina Prelić, whom I already mentioned, is one of the well-respected young farming women. Though her parents had a few animals and cultivated some land, Martina's new family, with a much larger volume of agricultural production than her

parents had, has many reasons to appreciate her. As her father-in-law, Gabrijel, is proud to say, since day one she has participated in their farming activities and worked just as hard. Also, as a young wife, Martina respects her husband's parents as *gazda* and *gazdarica*. She and Manda, her mother-in-law, run the farm and take care of the animals while the men are absent. Working with Manda, who is older and has more farming experience, Martina recognizes her place in the household hierarchy and is always willing to learn from Manda and let her decide how tasks will be accomplished. Although Martina learned to do things one way with her mother, when she married into the Prelić house she accepted their way of doing things (Martina Prelić, personal communication: May 11, 2004).

Martina does things as is expected of her. She knows that Gabrijel likes to have a large vegetable garden and to grow more food than they need, because they "seed for those who do not seed" (Manda Prelić, personal communication: June 8, 2004). Many people come to their house to "borrow" a bottle of tomato sauce, a pinch of red paprika, a jar of pickled vegetables, or a couple of eggs. The Prelićs never say they do not have any, but rather plant extra so they can give things away. Occasionally, Manda expressed to me her discontent with doing extra work for "the lazy ones" as she calls them, when her workload was already heavy. However, though she comments when Gabrijel tells her how much to plant in the garden, in the end she does as he says, respecting him as the *gazda*. Martina and some other young wives with whom I spoke are reared with that same mindset, to respect their husbands and the elderly, which in this case helps the three generations of the Prelićs to live together in harmony most of the time. Martina is just

one example of many farming women who share farm work with their husbands' families and who show respect toward their elderly and higher ranked family members.

Apart from the ways in which women relate to each other in a household, there are a few points to make about the way a husband and a wife relate to each other, some of which are described in the chapter's opening story. I do not wish to make a general statement that many Štitar women are abused⁵¹ and mistreated. However, I found it interesting that quite a few women I visited, in addition to others I observed in the village, lived with alcoholic husbands. With plum-brandy being made at home, alcoholism is a problem in many Štitar homes. It does not always lead to physical abuse. However, even in the worst cases, most women do not divorce such husbands, for a couple of reasons. First, as Catholic women, they regard marriage and parenthood as the most important values. Many women told me that they stayed with their alcoholic husbands because they did not want their children to grow up without fathers. Another reason most women told me was economic. They had nowhere to go. They did not have jobs or education, and did not want to embarrass their parents by returning home as single mothers.

A village woman, Eva Lukačević, remembers how it was when wives were unable to leave their husbands, because they knew that they would then have to work as hired laborers. Eva does not support divorce. She says:

today, self-supporting mothers receive welfare and do not have to work. I could have left my husband, because he had a son with another woman before our first son was born. But I didn't. I accepted this son of my husband's as mine and later that

⁵¹When I asked Kata Dominković if she thought of herself as an abused woman, she smiled and said that she never did. As a result, I do not think of Kata or other women with whom I spoke as abused. These women do not identify themselves as abused, but are identified as such by institutions that offer them protection and support in a decision to leave their husbands.

son helped our daughter to find a job and make a living in Germany (Eva Lukačević, personal communication: March 5, 2004).

Today, when more women divorce, women like Eva consider them unhappy women who did not put enough effort into making the marriage a success and who are now left alone and struggling financially. Many divorced women in the village do not remarry. Some return to the parental home and farm with them, while others live on welfare.

Other reasons why women remain in unhappy marriages are deduced from my own observations and conversations with some of these women. First, having land to cultivate provides women with more food and better security than welfare support would. Second and more important, remaining on the land assures some inheritance or a dowry for her children, which she would not be able to provide if she was receiving welfare benefits. I suggest that these selfless mothers put the security of their offspring before their own happiness and sometimes safety by deciding to stay married under any circumstances. Like Kata Dominković, many mistreated farming women commit themselves to farming and providing for their children, rather than feeling sorry for themselves. It often happens that by the time the children marry and leave the house, the alcoholic husband passes away, leaving the woman with a house to live in and to pass on to her children.

Although there are abusive marriages, I worked with many couples that lived and farmed together in harmony and reared children together. For instance, Luka and Marija Martinović have been married for over 50 years and reared five children. Luka always liked to drink a few ounces of plum brandy, but he never had a problem with alcohol. Manda and Marko Vincetić also have been married for many decades. He is now old and needs care from Manda, who provides it without a complaint. All these couples made

their farms prosper and have heirs who continue to farm, assuring the viability and resilience of their smallholdings.

Clearly, farming women not only contribute their time and labor to the farming endeavor, but they also play a crucial role in raising the next generation of responsible and committed farmers. This role is primarily women's, since men are less engaged in rearing children. With strong authority and their own behavior as an example, women teach their children to respect the elderly and those in command. However, many rural and agricultural policies do not recognize the importance of women staying on the farms and do not create programs that would motivate women to continue to farm. (This point is further discussed in chapter eight).

Summary

Exploring my second research question, this chapter focuses at how certain practices such as rules of land inheritance, household hierarchy, division and exchange of labor, and the role of women on the farm play out in securing prosperity and viability for farms. I demonstrate how, on one hand, the practice of partible inheritance splits a landholding in as many parts as there are heirs to the owner. On the other hand, practices like controlled marriage and celibacy kept the land divided among fewer heirs. In addition, siblings with non-farming careers who give up on their part of inheritance limit division of family holdings. Controlled marriages, celibacy, and dividing of the families also act as circulators of wealth in the Štitar community, which speaks to Netting's observations of inequality in wealth among the smallholders.

I also demonstrate that the success of the Štitar smallholder households depends on access to natural resources, as well as on the managerial skills of the household head, the authority he enjoys among household members, and the household members' work commitment and responsibility. I describe land, ecological knowledge, and farming experience as irreplaceable resources, which helped many Štitar farm families remain in the neighborhood and continue farming for many generations, as opposed to the families in the landless households. I provide evidence for Netting's (1993:69) claim that knowledge, skills, and labor investment served as an anchor that tied the household to resources that were difficult or expensive to replace. Access to land as a resource also motivates enough young farmers to keep the land and continue farming, even when they take full-time employment.

Furthermore, I demonstrate that the successful management and authority role of a household head, combined with the work of committed and responsible household members, result in a farm that accumulates wealth and secures a livelihood for future generations. I argue that elderly managers are still capable of making economic and rational decisions that will make their farms prosper, contrary to the claims of the policy officials in Croatia and in Brussels. I also suggest that age does not limit farm modernization efforts. Instead, I offer a difference in production goals and the overall state of agriculture as reasons for temporary rejection of certain modern practices. I continue to explore this claim in the next chapter. I emphasize that these elderly farmers, whom policy makers often perceive as averse to modern knowledge, are in fact the holders of the most extensive farming and ecological knowledge. Their skills, combined with the scientific knowledge of the young farmer, can only benefit future farming.

One last theme I begin to explore in this chapter and continue in the following chapters, is the role of women. I describe a family environment in which a wife respects her husband, and vice versa, although there are exceptions. I claim that such women's behavior nurtures a generation of offspring that learns to respect the authority of the parents and other elderly. It also teaches children to later care for the parents in return for the farm and the land. I further emphasize that the roles women play in participating in farming activities, running the household and the farm, and rearing respectful and responsible children are just as crucial for the household's longevity as the managerial skills of a household head.

In chapter six is a further exploration of the production goals of the farmers and a discussion of how a household's income varies depending on level of market involvement.

6

Diversification

Introduction

Due to the lack of available land it is rare that intensive smallholders are able to farm full-time. Consequently, household members must engage in other income-making activities (Netting 1993:116). Štitar smallholders accomplish this in various full- and part-time vocations, including, crafts, selling firewood, and providing slaughtering and other services. This chapter explores the different activities through which Štitar households make their income. It gives a market-oriented outlook on subsistence farming and explains the trend toward turning unproductive farm labor into more productive resources.

In this chapter, I describe four different household types based on the level of market involvement, which allows me to answer my research questions three and four. First, I explore themes related to my third research question. What are the production goals of Štitar smallholders? Do the challenges faced by Štitar farmers in this time of transformation differ depending on their level of market involvement? Are farming practices and household decisions changing as a result of the current politics?

By providing household profiles that contain information such as hectares of cultivated land, number of family members, and farming expenditures and incomes, I am

able to illustrate variation in household income among the households within the same type, as well as among the four types. I attempt to represent variation by describing the profile of two or three households within a given household type. The households I picked as examples are those for whom I have the most detailed empirical and ethnographic information. I use several statistical tests in order to explore how statistically significant are these differences in household income as a function of market involvement, as suggested in my research question four. Combining ethnographic and quantitative data has allowed me to better answer these questions and to gain a deeper understanding of the differences between market and non-market-oriented households, as defined by the Ministry.

Štitar household types

In my study, I chose households as the survey unit, based on the work of many anthropologists (Netting 1993, Barlett 1993, Thomas 1973) who have previously described the farming household as the major "corporate social unit" for mobilizing agricultural labor, managing productive resources, and organizing consumption. I divided Štitar households in four types, based on source of income and market involvement (see Table 1.3, page 29). *High market households* have a volume of 3 or more production units and produce enough to meet the required minimums for a production subsidy in 2003. All household members work on the farm full-time and do not engage in any legal full-time non-farm employment. *Medium market households* meet the same criteria with respect to production, but have a household head or another family member employed off-farm, full-time, part-time, or seasonally. This employment

can be legal or unregistered. *Low market households* produce between 0.4 and 3 production units, which does not meet the required minimums for production subsidies in 2003. These households sell some surplus but are mainly subsistence oriented. Most of their household income comes from external employment or a non-agricultural retirement. Many elderly farmers fall in this category if they own less than 3 hectares of land. Lastly, *no market and non-agricultural households* produce less than 0.4 production units, own very little land, and derive their income from non-agriculture related activities.

By the Ministry's division of family farms, only high market and some medium market households are "market-oriented". Other medium market households would need to expand their production volume in order to be classified by the state as "market-oriented." Low market households I studied are "non-market-oriented" according to the Ministry. As I explore in chapter eight, the Ministry considers only "market-oriented households" as farming household; the rest of the households do not sell enough of what they produce.

Agriculture as the primary income source

Only 55 Štitar households, or 11 percent, are high market-oriented, producing 3 or more production units and meeting required minimums for the production subsidy in 2003. The case studies below show that the level of market involvement varies among these households, as some have higher production volumes than others. These agricultural households cultivate their own family land. In addition, most of them cultivate a more or less equal amount of land that is rented from the state or other

villagers who are not able to farm the land.⁵² These households mainly produce wheat, maize, and some barley and oats. (For a figure of crop types and hectares seeded see Figure 6.1, page 357). They also produce vegetables and fruits for their own consumption. Part of the wheat they keep for flour and animal feed and part of it they sell. They feed small grains and maize to pigs and chickens, which are the bases of the farmers' dietary protein. Fewer households keep dairy cows and earn a part of their income from the sale of milk. Some high market farmers grow cash crops, mainly sugar beets and occasionally soybeans. Sugar beets are sold, whereas only a part of the soybeans is sold and the remainder is kept for dairy cattle feed (for crop and animal frequencies sold see Figure 6.2, page 359; Figure 6.3, page 360; and Figure 6.4, page 361).

Household head: Gabrijel Prelić

The family of Gabrijel Prelić grows the majority of what they consume and feed to their dairy cows and pigs (for the household profile see Table 6.1a, page 362). They also sell milk, live pigs, and sugar beets. The family of four adults and two small children, ages 4 and 6, provides all of the labor. Gabrijel is the head of the household, and both he and his wife Manda are active farmers. They are still capable of helping their only son Mato and his wife Martina, who will gain full ownership of and control over the farm after the older couple passes away.

At the ages of 60 and 59, Gabrijel and Manda are close to retirement. Having a young couple to continue farming and providing income makes it less crucial for them to

⁵²The Ministry's production support program did not care if a farmer cultivated his own or rented land as long as he met the required minimums of land and production volume. On the other hand, for the program of income support only land owned was considered.

receive some kind of national pension. Feeling secure, Gabrijel was never interested in paying to the National Pension Agency, which is necessary if a farmer desires to receive the national pension upon retiring. However, they did pay the pension for Manda when Mato became the primary farmer. She now receives a small agricultural pension of 820 HRK (\$136) which, combined with a child support of 300 HRK (\$50) per child a month, is the only non-farming income for the household (Mato and Martina Prelić, personal communication: August 4, 2004). This pension is rather small. For comparative purposes, according to the National Pension Fund, average pension for January 2004 was 1,904 HRK (\$268). Manda receives less than a half of the average national pension.

The Prelićs cultivate 10.6 hectares of their own land and almost an equal amount of rented land. The most rented land belongs to the former *Poljoprivredno dobro Županja*. Renting a significant portion of the land is a common practice among many, but certainly not all, high market farmers. Because most farmers cannot afford to buy 10 or more hectares at once, this practice may become more prevalent as former national land becomes available to rent. The rented land is often irrigated and more fertile, making it ideal for growing cash crops.

In addition to sugar beets as cash crops, animal husbandry supplies some of the family income, as their household profile shows. The Prelićs sell piglets that are pasture raised with corn and small grain diet supplementation. Pasturing the piglets and supplementing their diet with corn is the traditional way to raise swine, but it has changed with the advent of premixed feed. Now, most pig producers keep the animals at home and feed them corn and mixed feed. This method allows the pigs to accumulate fat more quickly than pasture-raised swine. More fat in less time assures more kilograms of meat

and a better price. Since the Prelićs still pasture feed their animals, they are among the few households remaining who raise smaller, less fatty pigs. When asked why he does not raise fat pigs like other farmers, Mato said that some of his buyers demanded pastured piglets with more lean meat (personal communication: April 4, 2004). Despite raising them more naturally, Mato often sells a piglet for less money per kilogram than his fellow villagers because the market system does not differentiate between mixed feed fed and pasture-raised meat. Since Mato's profit in pig production relies less on profit-maximization per pound and more on turnover of swine to make space for new stock, he is often willing to accept a smaller price per kilogram of a pig than other farmers.

In addition to raising pigs, the Prelićs milk 11 cows, producing anywhere between one and two thousand liters per month and making about 3,000 HRK (\$500) per month (Martina Prelić, personal communication: June 8, 2004). They also feed many calves and heifers, and they fatten and sell at least four bulls every two years. Like most Štitar farmers, they produce third grade milk. This is the lowest grade of milk available. If the Prelićs were to change their feeding and milking practices to abide by the newest recommendations, they would produce more milk of a higher quality. However, employing these methods would involve greater overhead due to the cost of milking disinfectants, minerals, vitamins, and veterinary services. Though the sale of milk is a significant portion of their regular income, they choose to avoid these costs and consciously continue to produce milk of lesser quality.

The milk quality grading system is based on four parameters: protein, fat, somatic cells, and bacteria. Milk with fat and protein content higher than 3.7 and 3.2 percent respectively is the standard. Price per liter increases as these two parameters increase,

but if they become higher than 4.3 in both categories the price remains unchanged. The price is then corrected with a coefficient that depends on the somatic cell (ranges from 400,000 to over 600,000) and bacteria count (ranges from 80,000 to over 400,000). As these counts increase, the correction coefficient decreases and the price per liter drops. The milk quality ranges from extra to third grade. Milk factories pay on average 2.3 HRK (\$0.39) per liter of extra grade milk, including factory support from 0.15 to 0.18 HRK (\$0.025–0.03). The Ministry pays an additional price support of 0.60 HRK (\$0.10) or more, but only to the producers who sell the required maximum of 6,000 liters per cow per year. Very few dairy farmers in Štitar are consistently producing milk of the highest quality. The Ministry and the milk industry have related the poor state of milk production to a need for farmers to modernize their stables and invest more in disinfectants, mixed feed, vitamin and mineral additives, and increased health control. However, many Štitar farmers are reluctant to adopt the suggested practices for the reasons I describe in chapter seven.

Other than pasturing pigs, the Prelićs are unique in the village because they continue to use their field house, where they keep over a half-a-dozen swine, many piglets and pigs of various age, and chickens. Located less than a mile outside of the village, their field house is easily accessible. Gabrijel rides his bicycle there daily to graze the pigs and he calls them back in the evenings. The rest of the family often accompanies him. Mato goes out to cultivate the surrounding fields or to bring feed from the village. Martina and Manda go out to tend a 0.3-hectare vegetable garden that is attached to the field house. At the field house, they also tend an orchard with several dozen fruit trees of various types and about a hundred plum trees. During the growing season Gabrijel collects fallen

fruits spared by pigs and later makes vinegar or brandy. He not only enjoys drinking his brandy, but offers it to visitors, some of whom come regularly for a shot or more.

Maintaining their field house makes the Prelićs a true rarity. Only 7 percent of the village households own a field house and fewer than that keep them functional (see Table 6.2). Most field houses are owned by the Šokac families and only a small fraction by the Bosnians. This relationship of field house ownership and ethnicity is not a surprise. Field houses were built in locations where a family owned a significant portion of land. Since Bosnians have traditionally not owned much land, the majority did not build field houses. Among the Šokac field house owners, Gabrijel is known as the only one who still visits his every day.

Table 6.2 – Joint relationship of ethnicity and field house

Ethnicity	Field house	
	% do not have	% have
Šokci	32	6
BiH	41	1
Dalmacija & Lika	13	0
Other	7	0
Total	93	7

Regular visits to a field house were a common practice during the existence of *zadruga*, when farmers kept their animals at the field houses part of the year. Today, most farmers keep their animals in stables in the village year round. Only a few take their animals to field houses during the warmer seasons. Many old field houses have collapsed.

Some individuals are reviving their old or building new field houses, using them as weekend get-away places. Even more field houses have a potential to re-gain their importance in the current farming policy emphasis on production of healthy food. Field houses could become valuable for raising free-range animals, since traveling between the

village and the field house on a regular basis is less cumbersome with the advent of tractors and cars. At the time of my fieldwork, Croatian policy makers did not promote this potential of the field houses. However, it was interesting to notice how the policy's push to increase animal production was creating a lack of stable and animal shed space in the village farm yards, causing more farmers having to keep part of their animals at the field houses. It was also interesting to find out from a farmer who raised lambs for sale that his customers preferred lambs with less fat on their bones. This same farmer grazes his flocks of sheep on communal pasture during the day and keeps it at his field house at night. It is possible that more farmers will gradually return to using these traditional spaces for free-range and pasture-raised animals.

Even with multiple farming activities in various locations, the Prelićs are able to complete their work as a family. With four adults actively farming and five tractors and machinery at work, they do not need to hire laborers. During agricultural bottlenecks, they occasionally exchange labor with extended family and neighbors. The most help they have from a neighbor, Ivan Šarić, who often works in the fields with Mato in addition to cultivating several hectares of his own land.

Another source of income for the Prelićs is an agricultural service provision. Since the majority of very small farming households own little or no machinery, they hire someone like Mato to seed, spray, spread fertilizer, or harvest their crops. Mato has plenty of calls, staying as busy as he wants to be. Having Ivan's help on the farm allows Mato the time he needs to provide agricultural services, which quite possibly comprises the largest portion of their household income. Sometimes both Mato and Ivan provide services, running two tractors at a time. Other times Ivan cultivates the Prelićs fields

while Mato provides services for other farmers. This flexibility allows Mato more time to make income.

For his help on Mato's farm Ivan is paid in trade. Mato allows him use his tractor, other machinery, and gas to cultivate his own fields. This particular situation of labor exchanged for machinery is rare and somewhat atypical, because the exchange appears to be unequal. Since Ivan cultivates only 16 hectares of land, he spends most of his days working with Mato. He is able to do this because he lives with his brother who also is a farmer and who helps cultivating their land. It appears that Ivan dedicates many more labor hours to the Prelić family than needed in return for Mato lending him machinery. However, it is obvious that the two men are content in their exchange relationship and that they enjoy working together (Ivan Šarić, personal communication: May 13, 2004).

Mato does not always receive monetary payment for his services. Instead, he is often paid in produce or labor. He can use this extra labor for tasks that exceed the time availability of his family members; or tasks in which he needs help, such as collecting alfalfa bales or spreading manure. Even when he is paid cash, the payment is not always immediate. Mato said that only one-third to one-half of what he makes is received in cash and it often comes months later. He has noticed over the years that it is more and more difficult for people to pay cash, so he lets them pay him whenever they can. Being so lenient in collecting payments eliminates the hassle of money collection (Mato Prelić, personal communication: August 4, 2004). Neither Mato nor any other member of his household disclosed to me how much income he makes by providing these services. However, from other information disclosed, it seems likely that they are able to

accumulate enough cash to allow them to purchase a used car or make monthly payments for a new tractor.

Household head: Ivan Martinović

Another full-time and high market-oriented farmer is Ivan Martinović, age 53 (for the household profile see Table 6.1b, page 362). Unlike Mato Prelić, Ivan earns money only through farming and does not engage in any other income-making activities. Like Mato and Martina, Ivan and his wife, Reza, share a household with his parents, Luka and Marija. Such co-residence of several generations is typical among Štitar smallholders who own more land (see Table 6.3). The average size of the family seems to rise with landholding size. For instance, families who own 10 or more hectares of land have more than five household members on average. Netting describes this same relationship in his tables 2.2 and 2.3 (1993:86).

Table 6.3 – Size of landholdings for households in Štitar

Landholding size, ha	0	0.01–3	3.01–5	5.01–8	8.01–10	10.01–15	15.01–20	>20
Number of households	231	124	44	52	15	20	13	9
Mean family size	3.50	3.55	3.55	3.23	3.60	5.35	5.31	6.00

Ivan and his family live in what used to be his father's *zadruga* house. Ivan's brother Marko lives next door in a house that their father provided. Ivan inherited all the family land because Marko chose a career as a plumber and gave up on his share of inheritance. Their grandfather owned the entire lot and built a large stable for his cows and horses in the back of the two houses. When their father divided the lot between Ivan and Marko, he also divided the stable in two, but Ivan uses it all.

In addition to cultivating 8 hectares of their own land and 11 hectares of rental land, the Martinovićs keep eight dairy cows and many heifers and calves, as well as pigs for their own consumption and for sale. With this much going on, Ivan needs the help of his family—his wife Reza, their offspring Mato and Anica, and his mother Marija. Marija is 74 years old and still capable of performing many household tasks, while Luka is too old to work at 79. Ivan and Reza perform most of the work in the stables and around the farm. They work together or they divide tasks in a complementary fashion. Ivan performs all the field operations, with occasional help from Mato, while Reza takes care of the farm and the animals at home.

Both of the children, Mato and Anica, were in college during my fieldwork. This made them less available for farm work, so Ivan and Reza often had to work long hours to complete all the tasks. Unlike the Prelićs, who had four adults able to work full-time, the Martinovićs had only two adults who were fully capable and always available on the farm. There were times when Ivan needed more help than he was able to find in his household, especially when transporting the crops from harvest. In those situations, Reza's brother Stanko,⁵³ a full-time farmer himself, helped. This was often reciprocated since Stanko's children were too young to work and his parents were too old to help much on the farm.

Although Ivan was occasionally short of labor from his family, his children's college education gave him a certain advantage among other farmers until recently. Mato attended an agricultural school in Osijek for a couple of years and was working toward an associate degree. With an agricultural education, Mato would be the ideal European

⁵³Reza and Stanko are children of Manda and Marko Dominković, who are descendents of the *zadruga* of Đuro Dominković from the first chapter's opening story.

farmer—benefiting from a formal education as well as personal experience from being raised on a farm. Policy makers perceive such farmers as being more willing to accept innovations, although my research suggests older farmers innovate when it is to their advantage.

However, Mato knew it was getting more difficult for Ivan and Reza to keep up with work on the farm (Josip Dominković, phone communication: November 19, 2006). Ivan suffered from a bad back, and during days when he had to stay still and take pain medicine, Reza had to do all the work alone. Mato could not ignore the need for more of his help on the farm. As much as Ivan wished for him to have a college degree, it was Mato's decision to quit school and commit to farming. In the end, he is the only heir to the Martinović's land. At around the same time, Anica decided to quit her law school and start a family.

Most of the Martinović's household income comes from the milk sales. Inadequate stable space is Ivan's main challenge in his dairy production. Built forty or fifty years ago, his stable is small, dark, poorly aerated, and has a poor drainage; all unfavorable conditions for modern milk production. Moreover, the number of the cattle Ivan raises exceeds the stable space, forcing him to convert some storage space into stable space. Ivan attempted to solve this problem by building an open shelter in the back of his yard in accordance with the newest dairy science recommendations. However, this space is also inadequate because the dirt floor gets muddy during rainy days. Mud on the cows' udders means more bacteria in the milk and more risk of udder infection or mastitis. Mastitis increases the somatic cell count in the milk, which lowers its price; can also permanently damage the udder. Ivan could pave the floor, but because of its size, it

would be impossible to clean it daily by hand. Since he is not ready to invest in mechanizing his cleaning process Ivan's open shelter remains empty.

Thus, Martinovičs mostly produce low (third) grade milk. Selling their milk, they earn from 3.7 to 7.4 thousand HRK (\$616.69–1,233.30) each month, which is more than the Preličs. Unlike the Preličs, Ivan pays more attention and invests more in the feeding regime of his cows. He buys premixed feed, vitamins, and minerals and he feeds the cows soy, which increases protein levels in the milk, along with corn and dry fodder. Certainly his investments were paying off in the quantity of milk he produced, but unfortunately not in the milk quality. Not being able to increase protein and fat content in his milk made Ivan unhappy about the whole politics and economics of milk production. His basic milk price continues to be as low as 1.66 HRK (\$0.27) and that was the only month when his milk was second grade. The highest basic price he was paid was 1.95 HRK (\$0.33). Ivan could not understand how he was paid less per liter than some other dairy farmers who did not feed their cows soy, or vitamins and minerals.

In response to farmers' stories of frustration with milk production, I researched Croatian and American dairy science literature. I quickly learned what practices farmers needed to implement to lead them toward milk quality improvement. I then went around the village and looked for farmers who were closer to this goal. I assumed that one of Ivan's limitations to producing good quality milk could have been the fact that he did not have a cooler, but kept his fresh milk cold by putting it in the cold water, the common practice in Štitar. Then I visited Stanko who had a cooler, applied milk disinfectants, and included soy in his cow feed, but who also did not produce high grade milk. Nothing Stanko did seemed to result in producing top grade milk. I continued to visit different

dairy farmers in Štitar and nearby, until I found a success story in the neighboring village. The story of this farmer is a part of the opening story for chapter seven.

Štitar dairy farmers were upset with the Central Milk Lab for introducing new criteria for analyzing milk quality that lowered the price of milk per liter. They believed the lab manipulated milk quality results to protect the interests of the milk industry. The farmers were convinced that the milk industry and the government created this system in an effort to push some farmers out of production by paying them a low price.

I looked for evidence to prove the farmers' assumptions wrong, but all I found was more material to support their stories. I collected a year's worth of the milk lab reports for seven Štitar dairy farmers. I discussed with them individually what the reports said about their feeding and care practices. The milk quality lab results were meant to provide a farmer with information about what he needed to change in his caring and feeding regimes and were meant to reflect any change in overall health of cows or milk handling. For instance, if a cow was sick, somatic cell counts were expected to increase. What we saw were constantly high somatic cell counts. If the cow was eating a balanced diet of fodder and grains, protein and fat content were expected to be at a higher level. Instead, we were seeing lower protein levels of cows that were eating soy than of those that were eating too much corn. Simply said, the reports were confusing.

Another area I investigated was the basic milk price calculations. I made a spreadsheet of farmer's milk quality analyses results and calculated the basic milk price for each farmer, using the same equation as the milk lab administrators. I was surprised to discover that only one farmer's calculations were the same as the numbers on the report for the whole year. In the remainder, my calculations were above the official

numbers in some months and below in others. The official reports appeared to contain mistakes. Clearly, something was done incorrectly somewhere between analyzing milk and calculating the price. The unwillingness of the institution to provide a clear explanation for these inconsistencies raised suspicions further.

Farmers like Ivan and Stanko are eager to produce good quality milk and do not reject new recommendations of dairy science. However, in addition to the unclear lab results and pricing politics, they face the problem of increased costs tied to business expansion. Increasing the number of dairy cows means not only incurring costs of building larger stables, but also mechanizing waste management in these larger stables. Most farmers cannot afford to grow large quickly. The few who do must take out a loan. During my fieldwork, the majority of farmers were increasing their herd size slowly, staying within the family's economic and labor means. In order to feel that this gradual expansion is worthwhile, Štitar farmers need to see the results of their increased investments. They need to see higher protein and fat contents in their milk resulting in higher prices. Unfortunately, not only do they not see the benefits of implementing modern dairy practices, but they also do not find reasons why their milk quality is not improving with the suggested alterations. This makes the goal and the path leading to it seem nebulous.

With all the odds against them, many Štitar farmers continue to find the most security in their traditional practices and knowledge, and experiment only with new suggestions that involve minor costs. Štitar farmers prefer to rely on their own financial resources and avoid debt. Although policy administrators see such behavior as resistance to change, anthropologists who study farmers across the world describe such decisions as

rational and economically sound (Netting 1993, Barlett 1980, Cancian 1980, Chibnik 1978). The reasons behind what appears to be an unwillingness to change may in fact be tied to several aspects of smallholders' production goals. First of all, subsistence production has always been a way for smallholders to protect their households from the unpredictability of natural phenomena and political turbulences, as Netting (1993) described among his smallholders. Market involvement has always been on the part-time basis. "Smallholders consciously decide to provide part of their own household subsistence rather than becoming entirely specialized, market-oriented producers of agricultural commodities" (Netting 1993:84). When the price of a cash crop falls below cost, or demand for it vanishes, a farmer can always fall back on his subsistence base to meet his family's consumption. It is this subsistence base that allowed generations of farmers to persist and continue to be viable.⁵⁴ Once a farmer abandons his subsistence production and turns to producing for the market, he loses his independence and his household security. Simply said, he becomes dependent on his marketable crop and the market. If either of the two fails he does not secure income for his family. Such a farmer is not sustainable in Netting's terms. Thus, farming policies that push farmers to become fully market dependent may secure a short-term profit for a farmer but they may not secure long-term viability to his family and his heirs.

⁵⁴See Laura Kirby's draft of Master Report (2007) under the title of "Expanding Local Markets for Local Farm Products in Western North Carolina". As a part of the historical overview, the report describes 200 years of existence of WNC small family farms and how they have persisted and adapted to changed external events. In 1800, they started as subsistence producers; engaged in the market when Buncombe Turnpike was built; then began to grow tobacco as a cash crop and when its demand dropped, they went back to subsistence; then started to produce burley tobacco which lasted until the 2004 tobacco buyout, which brought them new challenges.

Another explanation for farmers' unwillingness to change could be found in their perception of the risks and uncertainties⁵⁵ that often accompany innovations. "Peasant agriculturalists often prefer activities that offer good chances of maintaining their present standard of living to alternative activities that offer opportunities for increased cash incomes but are perceived as risky" (Chibnik 1978:569). Similarly, the dairy farming decisions that Ivan Martinović, Mato Prelić, and other farmers made maintain their desirable standard of living. Given the political and economic uncertainty that they face, Štitar smallholders perceive certain activities promoted by policy makers as too risky because they potentially could increase their debt. Such risk aversion leads them to prefer traditional staple crops to newly introduced cash crops, and to maintain old practices rather than implement new ones. Chibnik's explanation of the farmers' preference for traditional crops helps us to understand why Štitar smallholders are reluctant to transform from traditional grain production to fruit and vegetable productions, which are more profitable on small plots of land. Growing cash crops is associated with uncertainties regarding prices and yields. In contrast, staple foods are used largely for consumption and are not subject to market fluctuations. Such considerations of risk and uncertainty cause Štitar farmers to value subsistence crops and traditional practices over cash crops and modern innovations.

Cancian offers a different perspective to the reasons behind farmers' resistance to quick changes. "The poor farmer may be more willing than the rich farmer to adopt when there is uncertainty because whatever the potential loss, he cannot sink much lower in the local socioeconomic structure" (1980:167). In other words, farmers who hold a

⁵⁵Cancian (1980:162–163) distinguishes between risk and uncertainty. Risk is in situations when one knows the probabilities of a various possible outcomes. Uncertainty occurs when the probability of the possible outcomes is not known.

lower economic rank in the village are more likely to accept innovations. As higher economic ranking is desirable, poor farmers are more likely to adopt an innovation in hopes that it might elevate their social standing. Cancian (1980:167) also points out that poorer farmers adapt more quickly only in the early stages of technological change. Rich farmers adopt new changes later when uncertainty decreases as more farmers adopt the innovation. Applying Cancian's theory to Štitar farmers like Mato and Ivan who enjoy a higher economic rank in the community means that they could potentially have smaller gain and greater loss from accepting a given innovation. However, as Cancian warned, this notion should not be generalized. Even the richer Štitar farmers tried some new innovations unsuccessfully, but they had the resources to absorb the costs of these failures. I suggest that the fact that most Štitar farmers were carefully experimenting with scientific knowledge and gradually transforming, speaks to the Cancian's claims.

Household head: Jakob Dominković

The last high market household to describe is that of Jakob Dominković and his elderly mother Kata.⁵⁶ For them, agriculture is the only source of income (for the household profile see Table 6.1c, page 362). Kata worked hard as a farmer all her life but does not have a pension because she never made payments to the National Pension Fund. Jakob used to have a state job. When his father died he quit his job and took over managing the family farm. Most of his income comes from the sale of milk and piglets. He keeps three milk cows. On the 8 hectares he inherited, Jakob produces small grains and maize for his own household consumption. He produces some surplus wheat which he sells. Although feeding a smaller number of animals, Jakob still grows enough wheat

⁵⁶Kata is my storyteller from the fifth chapter's introductory story.

and maize to meet the required minimums for a production subsidy in 2003. However, with the increases in required minimums in 2005 he needs to expand his production volume to stay market-oriented.

Jakob's farm does not have an heir since at the age of 39 he is still single. With only his mother to provide for, Jakob is not motivated to expand his farm. Netting (1993:332) describes a similar lack of motivation among the smallholders he studied. He states that the smallholders'

success on the land seems most generally to be conceived as service to the family and its future. Lacking such motivation, Swedish single farmers often saw little meaning in improving the farm, since they had no family to appreciate their efforts and no family member to inherit the fruits of their labor (Netting 1993:332).

Without an economic necessity to provide more and an heir to inherit his farm, Jakob and many other Štitar single farmers, do not decide to work harder, or to invest in more land and machinery.

These few examples of high market households reveal a few common themes among them, one of which is diversification of production and income sources. Although agriculture provides most of the household income, the farmers engage in other activities—farming service, logging and selling firewood, and making crafts—that provide additional income. Moreover, they diversify their agricultural production by growing subsistence grain crops and maize, with which they feed their animals. Most high market households grow some cash crops, either sugar beets or soy. Such diversification is a protective mechanism from the uncertainties of climate and market politics. Rather than dedicating production entirely to cash crops as they are encouraged to do, Štitar farmers continue to produce less risky traditional crops that provide their subsistence base. In this way, family farmers' production goals vary from those imposed by the policy.

The high market households are also similar in that they have two or three generations residing and working together and ensuring an adequate labor source. The presence of a young couple with children secures food provision for the elderly couple and continues the lineage and the farm. More working hands allows for larger landholdings and the accumulation of more wealth. These households divide the workload among family members based on age and sex and they regularly organize work exchange parties. With such labor and time management, smallholders complete most of the farming work without hired help. Such household dynamics could have serious ramifications on the Croatian agricultural policy.

The above evidence suggests that a family consisting of an elderly couple, their married children and their grandchildren is a viable model for a family farm. Such a smallholding has enough family labor available to cultivate 15 or more hectares of land and to provide an adequate income from diversified sources. As long as a household does not increase its landholding beyond its capabilities the relationship between labor supply and demand remains relatively stable. Such an agricultural system that can maintain predictable and stable energy expenses resembles the model of a sustainable system as described by Netting (1993:136, 145).

Netting (1993:142) also remarks that the use of external products (i.e. fertilizers, seeds and pesticides) does not preclude sustainability if these are used efficiently and without need for large capital investments. In my study, I found Štitar smallholders to be sustainable as described by Netting, but not necessarily as understood by policy makers. They are sustainable because they continue to use relatively less fertilizer than the former national cooperatives and they supplement some mechanized operations with labor (as I

elaborate further in chapter seven). By maintaining relatively low capital investments, being self-sufficient, and only partially market-oriented Štitar high market smallholders maintain more stability than the large-scale, extensive farmers. Will they be able to maintain that position? I explore these issues a bit further in the following two chapters.

Another common theme among the high market farmers is their opinions about their position in the current politically influenced infrastructure of farming. They are not happy with the low prices received for their produce and the high overhead costs. They do not trust government institutions and they do not take advantage of the Ministry's capital investment loans. They generally prefer to rely on their own financial abilities and increase their investments gradually. They do not change their production goals toward producing more cash crops but rather continue to grow traditional crops and rely on a combination of traditional and new farming practices.

While there are many similarities, the high market households differ in the size of their production volume and thus in the amount of wealth they accumulate. A comparison of farmers with larger versus smaller production volume allowed me to notice a correlation between number of household members and land size. As Netting found,

the dynamic process of continual adjustment between the numbers and skills of household members and the agrarian resources to which they have access is particularly important among intensive cultivators. It is apparent that smallholders everywhere strike some kind of economic balance between household number and land size (Netting 1993:87).

I found this to be true in Štitar, as households with many family members of different generations are more likely to own larger landholdings than families with only two or three members. The landholding size is not static, but changes as the families go through

developmental cycles. Cultivating rental land provides even more flexibility in a way of being able to choose to plant it or not the following season, and to expand without having to buy more land. In support of this notion are households such as that of Jakob Dominković—heir to a once large *zadruga* of Đuro Dominković—whose landholding size has adjusted to meet the needs of his now small household.

Agriculture on the side

In Štitar, 62 households, or 12 percent, farm in addition to full-time employment or other non-agricultural activities (see Table 1.2, page 27). These medium market-oriented households produce 3 or more production units and they meet the required minimums for the production subsidy in 2003. Thus, combined with the high market households, 117 Štitar households or 23 percent, belong to the "market-oriented" category according to the Ministry. There are differences in how much these households produce for the market, as some households meet the required minimums in only one or two production types, while others produce larger amounts of surplus in various crops and livestock. The following examples of medium market households will demonstrate such differences in production volumes.

The majority of part-time farmers are descendants of farming families who decided to take outside employment. Most of them continue to work their land for food and/or profit. They continue to farm because they feel connected to the land and to the livelihood of their fathers and grandfathers. They also feel an obligation and responsibility to keep the farm in good standing and pass it onto their heirs. Having land ownership rights has always provided security by providing income and sustenance when

the economy is poor. With the currently high unemployment rate in the Županja area, people hold on to their land for security and livelihood. For those who have retained jobs the time management of farming is quite different than for the full-time farmers.

Household head: Josip Dominković

Josip Dominković, my cousin, lives on the farm with my Aunt Ana. He is employed full-time and occasionally helps on the farm. His youngest brother, Antun,⁵⁷ took over cultivating 7.8 hectares of land after my uncle passed away. Antun is also employed full-time at the Županja sugar refinery, lives in Župnja and regularly comes to Štitar to farm. Antun is the youngest heir to what used to be the *zadruga* of Karlo Dominković, our grandfather. Karlo had three sons, but Stipa, the middle son, inherited most of the land after the other two sons, Ivan⁵⁸ and Mato, left the *zadruga* and gave up their share of land for employment and education. When Stipa's three sons grew up, the two older ones chose non-farming careers, which left Antun as the only heir to the land. After Stipa passed away, the largest part of the inheritance belonged to my Aunt Ana, his widow. She soon passed it on to Antun, who had always enjoyed farming. Antun has three young sons and hopes that at least one will grow up with that same love for the land.

It is a challenge for Antun to optimize timing and weather for field activities, since he works twelve-hour shifts with twenty-four hours off. Like other farmers, Antun thinks ahead and is always aware of the weather forecast. He balances work and time-off, keeping in mind which days he is able to perform farming activities. He is usually on the

⁵⁷Antun lives in Županja with his family. He was not in my sample, but I include his example as a case study, because I lived on, and helped farm, my aunt's land. Being a member of the same family and knowing the family history allowed me to get an even deeper understanding of part-time farmers' reasons for farming, their connection to the land, and the management of their farm.

⁵⁸Ivan, my uncle, was my informant from chapter four, who told me how *Napredak* was established.

farm during his off-days and he also often comes in the evenings, after his shift ends. That means he must sometimes stay in the fields well into the night and sometimes neglect the needs of his family. He would not be able to do this without the support of his wife Gabrijela. The two of them organize parental, household, and farming obligations in a complementary fashion, which allows Antun to be a farmer, a plant worker, a father to his children, and a husband who occasionally prepares the meals.

Playing all these roles makes Antun a rarity among the farming men, who traditionally were only farmers and providers. Although the role of men is slowly changing, many farming men continue to stay away from tasks that have traditionally been considered to be women's work. Not having time to perform any of his roles is not an option for Antun. He knows he has to keep his job because it brings in a regular income. He also knows he wants to continue farming, because he desires to pass the farm onto his sons in good standing. The farm may not provide him much income at the moment, but it produces food for my Aunt Ana and the rest of my cousins and their families, which they would otherwise have to buy. It provides maize and wheat to feed the pigs, sheep, goats, and chickens, which they slaughter for five different households. It also provides vegetables to store and eat throughout the winter. Not only does Aunt Ana supply her children with produce from her farm, but she also helps her neighbors and other villagers who are in need. With such care for each other, hunger is less likely in the village.

In return for the food they take from the farm, Aunt Ana's children help with work on the farm when they are needed. Occasionally, she hosts labor parties in her yard, accompanied with drinks and a meal. By belonging to an elderly generation, she is not

expected to return the labor, but Antun and Josip fulfill that obligation. Aunt Ana never has to hire outside laborers, as her family and exchange labor are readily available.

Antun grows traditional crops, but thinks and often talks about his future choices as a farmer, in light of the current agricultural policy. He is aware of the new farming directives that encourage him to expand his small grain production, or to turn to products that are thought to be more profitable in smaller areas. He was not quite ready to risk adopting a new crop, mostly because he is not certain that he would be able to sell it. Antun has been trying to grow sweet corn for a few years, but has been disappointed every time. The first year he was approached by a number of middlemen who were buying corn from him and other producers and selling it at the Croatian cost. These individuals picked up the corn from Antun without paying immediately, promised to pay him later, and never did so. The following year, Antun's corn came ready at the same time as the corn of a farmer who was willing to sell it below Antun's price, so Antun did not sell any of his. After all this trouble, he decided to grow only as much as he, his family and his friends can consume. Antun still finds more security in growing traditional crops which he can always sell and for which he will receive payment.

A new difficulty arises from the fact that the wholesale price of wheat has not been following the increase in inputs. In 2003, farmers were able to sell their wheat for 0.98 kunas (\$0.15) per kilogram. This year, Antun received 0.94 kunas (\$0.18) per kilogram (Antun Dominković, phone communication: January 12, 2007), but his profit was shrinking. He and other farmers who grow only a few hectares of wheat feel the consequences of their small production volume in their inability to make a profit. Every year, their costs of production rise and their profit margins shrink. Farmers are happy

when they are not in a negative balance at the end of a growing season, and many of them do not break even. Antun knows he will have to change his production goals, but does not yet know what direction to take. It is clear to him that the current agricultural policy is aimed against him as a small wheat producer and is aimed toward farmers who grow a minimum of several dozens of hectares of wheat. Antun and other smaller farmers are expected to either adopt a new crop or to exit farming altogether and let their land be cultivated by the big farmers.

Antun wants to continue farming. He is not comfortable taking out a loan to expand or adopt a crop that would require large investments because he has no chance of competing with mass produced and imported foods. Also, if he were to adopt a more labor-intensive crop he would need to commit more time to the farm, but without a stable and secure market for his crop he cannot leave his employment. Hence, for the time being, Antun continues to grow traditional crops until he decides what to do next.

Unlike Antun, who has a full-time employment and farms on the side, some other medium market farmers do not have a full-time job. They diversify their household income in an array of activities other than farming such as leasing boars as swine sires to other village farms, servicing septic tanks, and other forms of seasonal, or unregistered employment. In addition many receive some kind of social support—disability pension, child support or unemployment—or other forms of non-agriculture related incomes like a pension. (I discuss government payments in chapter seven). These secondary and tertiary income sources are often small, but in combination with a stable food source, farming families are able to support themselves.

Household head: Marko Vincetić

Stipa Vincetić (the son of Marko) is an example of a medium market farmer who relies primarily on agriculture for his livelihood (for the household profile see Table 6.1d, page 362). His farming income is supplemented by the social pension received by Manda, Stipa's mother, for caring for her husband as well as by the child support Stipa and his wife Janja receive. Although both Stipa and his wife, Janja, are full-time farmers, his youngest brother, Mirko, is a self-employed musician, which makes Stipa's household a medium market one. Stipa and Mirko have two more brothers—one a farmer and the other a teacher. The two non-farming brothers gave their part of the land inheritance to the two farming brothers.

Stipa is an heir to a once large *zadruga* family. At the age of 54, he is the head of the household even though his father Marko is still living. Since Marko is confined to bed, Manda, his wife, cares for him in addition to performing many housework tasks, though she is 72. Stipa cultivates 9 hectares of his land in addition to renting 7 hectares. He and Janja take care of the farm together. They raise pigs for their own household consumption. Stipa says he could raise pigs for sale, but he is deterred by reports from fellow farmers that pigs sell below cost, so he continues to raise only as many as his family needs. Some years ago, they raised bulls for the market, but quit because the bulls sold for less than the value of the meat.

Milk production from six cows is another contributor to the Vincetić's income. Like everyone else, they produce third grade milk most of the time. Strangely, in some months they produced first or even extra grade milk. This was an unusual occurrence as their stable was no different from other village stables, they were not applying milk

disinfectants, and they did not have a cooler. Some farmers told me that Stipa and Janja were producing better quality milk because they were milking by hand. After I did some reading about the issue, I learned that milking equipment has a lot to do with milk quality. The majority of the Štitar dairy farmers were using the same type of a milking machine, which was the most affordable, but also impossible to clean properly. As soon as Stipa and Janja decided to mechanize their milking and purchased that same milking machine, their milk quality worsened.

Stipa and Janja earn approximately 2,900 HRK (\$483) per month from the sale of milk. They sell their milk to *Napredak* with whom they have worked for many years. For the household of five, not counting Stipa's brother who is financially independent, this milk income is too small to cover the costs of living and farming. Janja says they pay basic house bills and some farming expenses from the milk sale. The Vincetićs live from paycheck to paycheck, though often do not receive a paycheck because *Napredak* keeps it to cover their input debts. During such months, they have to scramble to pay the bills. In such situations, Mirko helps with some cash. Other times they use production subsidies to patch some holes in the short term (Manda Vincetić, personal communication: June 20, 2004).

For a farm of his size, it is unusual that Stipa owns only one old tractor. A lot of his machinery is also outdated. Even though Stipa owns a corn harvester, he pays someone else to perform this activity. He also pays a herdsman to take his cows to the communal pasture every day. The Vincetićs pay 100 HRK (\$16.60) per cow per month. With a total of 14 cattle in their herd, they have to pay the herdsman 1,400 HRK (\$233.30) a month, which is almost half of what they make by selling milk. In addition to the cost of

the herdsman service, they are obliged to pack him lunch for as many days as they have cattle in the herd, which adds even more to the already high cost of the service. The Vincetićs often try to work out some kind of a deal with the herdsman, in exchange for his service. For instance, during my fieldwork, they paid him for two months of his work by raising two pigs for him and fattening them for the November slaughter (Janja Vincetić, personal communication: June 20, 2004). However, even with such a deal, the cost of the service is still too high for them. Janja is not sure that the service is really worthwhile to them. Stipa, on the other hand, says that sending the cows to pasture is worthwhile because it saves feed. Most other dairy farmers keep their cattle at home if they do not have a designated herdsman within the household. With Stipa and Janja being the primary labor force at home and in the fields, they cannot afford to spend their days with the cows in the pasture.

At his age, Stipa does not have much time left before he will be physically unable to work as hard as he does now. He knows that his only child, Jasna, will leave the farm when she marries and he has no other heirs. Stipa struggles to keep the farm running. He purchases most of his farm inputs from *Napredak*, which allows him to pay his accumulated bills at the end of the harvesting season. This practice, however, prevents Stipa from shopping around for lower prices. He usually pays his debt at the end of the year, just before it is past due. Stipa barely covers his farming costs. For instance, he paid his 2003 debt in February 2004 with the money he received as a subsidy for his fall 2003 wheat production. By June 2004, he had accumulated a 24,000 HRK (\$4,000) debt to *Napredak* and other institutions like the veterinarian and the Croatian Cattle Center (Manda Vincetić, personal communication: June 20, 2004). In the absence of an heir to

pass the farm to, Stipa resembles single farmers who lack motivation to expand production or improve their farms. Stipa owns enough cows to remain market-oriented, but he will need to increase production per cow if he wants to continue to receive milk subsidy.

Unlike Stipa, who meets only the required minimums with milk production, other medium market and part-time farmers sell enough piglets and fat pigs to be market-oriented. Yet others have fewer animals to feed and thus are able to sell more wheat as surplus at the end of a year. Those farmers who do have to increase their production volume or adopt a new crop often have neither the land nor the time needed to do so. Without meeting the production minimums they will not receive a subsidy and will fall into the category of non-market-oriented households in the policy's terms. In fact, in the policy's terms, they will not even be considered farmers. (The question of who is a farmer in Croatia is explored in chapter eight).

Such a policy ignores the fact that these farms provide employment to the rural people. It also fails to recognize that the farmers have always been carving out a livelihood by diversifying their income in agriculture and non-farming activities. During Austro-Hungarian rule they provided labor and military obligations in addition to farming. When industrialization and agricultural modernization took hold, the "latter-day technology allowed agriculture to continue as a part-time activity along with employment in industry and the tourist trade" (Netting 1993:10). In the absence of enough land to make a living in farming alone, Štitar farmers have always engaged in other income making activities. It is such diversification of income that has allowed them to increase the resilience of their smallholdings (viz. Netting 1993:16). Policy makers wish to

substitute this type of income diversification with a different understanding of diversification (as I describe in chapter eight). Policy administrators are also encouraging part-time farmers to either change their production goals and become full-time farmers or to exit farming completely and rent or sell their land to "the serious farmers." Will a part-time farmer, like my cousin Antun, sell his land? That is hard to imagine because Antun has sons who may continue farming it. I emphasized in the previous chapters that Štitar's smallest-scale farmers took employments during the socialist industrialization and deruralization efforts, but continued to cultivate their land. The current agricultural policies are using different methods to alter farming practices and it remains to be seen how the farmers will respond this time.

Most medium market households meet their labor needs internally and are active in exchanging labor. Medium market farmers must engage in work off the farm as they do not have enough land available to live by farming alone. They own as much land as is manageable for farmers who work the fields and have full-time employment outside the farm. Although some of the medium market households are on the verge of being "market-oriented" (as characterized by the Ministry), they continue to provide subsistence and some income from sale.

Like the high market households, medium market households are challenged by unstable markets, by competition that lowers the price of crops, and by high input costs. Every year seems to get more difficult, especially for the smaller farmers who grow only a few hectares of wheat for sale. For instance, in 2006, many farmers did not pay their debts to various farming services before the year was over (Marija Dominković, phone communication: January 17, 2007). They say the money they received from the wheat

sale had to be invested in fertilizers for the fall wheat planting. The subsidies, which they usually use to pay their debts, were later than usual. Is it then safer to have wage-employment? Maybe, if jobs were available. The next section provides examples of the households that mostly rely on non-farming income.

Low market involvement

In Štitar, 130 households, or 26 percent, are categorized as low market households that produce between 0.4 and 3 production units (see Table 1.2, page 27). They do not produce the minimum required amounts for production support in 2003. Their production is almost entirely subsistence. Nonetheless, they could receive the Ministry's support through income support or rural development measures, which are discussed in chapter eight. This category also includes elderly households in which the household head is older than 55 and his spouse older than 50. Elderly households are eligible for the agricultural income support program if they meet several other requirements.⁵⁹ In 2004, this income support was 7,500 HRK (\$1,250) a year, paid quarterly. Since this amount was not sufficient to cover the living costs for two people, most elderly farmers had to continue farming as long as they were able to work. In 2005, the income amount for elderly households was increased to 25,000 HRK (\$4,166) if both elderly people paid to the National Pension Fund. Eligibility criteria were also expanded so that the maximum amount of land allowed to own was 5 hectares. This increased the number of households

⁵⁹They have to produce more than 0.4 and less than 3 production units, and they have to own less than 3 hectares of land. The elderly person also has to meet his or her debt to the National Pension Fund. Elderly farmers are entitled to this support program until they enter the national pension age of 60 for women and 65 for men. In 2004, not many elderly households applied for this type of support for several reasons: many farmers had large debts toward the National Pension Fund; the amount was not enough to support two people; and it was a newer program and not many farmers knew about it.

that were eligible to apply. After 2005, the program also included households that meet the same land and age requirements, but not both elderly people were paying into the National Pension Fund. If at least one of them was, they were entitled to 5,000 HRK (\$833) of income support.

For the remaining low market households who do not fit the elderly households model, the primary income source comes from a salary, work pension, temporary and unregistered work, or other non-agriculture related sources. In 2004, they were not eligible for any kind of financial support from the agricultural programs, but were able to apply for support from one of the rural measures or entrepreneurship. However, Štitar residents rarely know about these other options.

Household head: Josip Dabić

One such low market household is that of Josip and Marija Dabić (for the household profile see Table 6.1e, page 363). They have three children, two of whom are employed and financially independent. The children do not contribute any of their income for household needs, but they do provide pocket money for their high-school aged sister. Josip and Marija cultivate only 1.7 hectares of rented land and they own a small orchard and a forest patch. They grow wheat and maize for animal feed. Their small farming income is based on meat production. They raise piglets, some of which they sell and others of which they fatten and slaughter. From the slaughtered pigs, they make smoked meat—*kulen* (a type of a spiced and cured pork sausage) and cured ham, which they sell regionally. They do not own a tractor or any machinery, but borrow them from Marija's parents or her aunt. For the borrowed machinery, they exchange labor with these family members.

Since Marija comes from a farming family, it is she who tends the animals while Josip works in his woodworking shop or fishes. After he was laid off from a factory, Josip started his own woodworking shop at home. This home craft provides a side income, though it is not meant to be a business. He takes orders for furniture from individuals who work abroad and have a house in Štitar or another village. Such individuals are more interested in paying for custom-made furniture than most of Josip's fellow villagers. He also makes simple wooden boats for his friends in the village who are also local fishermen. He does not, however, get enough orders each year for him to become a full-time woodworker (Marija Dabić, personal communication: June 24, 2004). Hence, he does not think of his shop as a business and does not register it as such.

Developing home craft production in rural areas is a part of the national rural policy that the Ministry of Agriculture co-sponsors with the Ministry of Entrepreneurship. During my fieldwork, Josip picked up a letter from a friend sent out by the two Ministries, which explains the benefits of developing and registering small business in a rural area. He carefully considered the terms and the benefits he would receive if he registered his home craft. However, the benefits that the Ministries offered did not outweigh the benefits that his unregistered home craft afforded him already. Hence, Josip, and many other village entrepreneurs, decided to keep their businesses unregistered as long as they can.

In addition to receiving money from woodworking, Josip makes some income by selling the fish he catches in the Sava River. He has his own boat and his section of the river where he fishes with nets. Most Štitar fishermen use fishnets, even though it is illegal. Every now and then the river police confiscate some fishnets. When this

happens, furious fishermen quickly make a trip across the border to Bosnia and purchase more cheap fishnets. Josip sells most of his catch in Štitar and the neighboring villages. He makes most of his money during Catholic fasting holidays (Josip Dabić, personal communication: March 8, 2004). Marija also provides a small income from the occasional sale of her machine embroidered tablecloths, sheets, and other items.

The proximity of Bosnia and its cheap goods is as beneficial to the villagers as it is troubling for a few reasons. Food and commodities are far cheaper there, and because of this people are not willing to shop at the local open markets and pay more for the food produced locally. Moreover, farmers can buy low cost inputs in Bosnia, but the product is often of poor quality, especially in the case of pesticides or seeds. The availability of cheap consumer goods from Bosnia has hurt many local businesses and home crafts in the Županja area. Unfortunately, the people do not recognize the effect of their shopping preferences on the local economy and continue to buy where it is cheaper.

Unlike the Dabićs who do not have regular incomes, some other low market households have a better financial standing. These households generate two or more employment incomes or pensions. Those who worked abroad and retired in Štitar often have higher pensions than the local workers. Some low market family members take seasonal, registered, or unregistered jobs. On occasion, they go into the forest and collect some firewood for sale.

Household head: Mirko Lukačević

Another type of households that falls under the low market category are elderly households, such as that of Mirko and Eva Lukačević (for the household profile see Table 6.1f, page 363). At the ages of 62 and 57, Mirko and Eva worked as farmers long enough

to have earned a pension from the National Pension Fund, had they been paying into it regularly. However, they, like many farming families, did not find worth in contributing to a pension when they were young and able to work. As they grew older, they realized they were not as productive as young farmers. They were also influenced by the current talk of the agricultural policy administrators that encourages elderly farmers to exit farming. Finally, their only son had lost a job in Zagreb and was back at home and unemployed. Hence, Mirko and Eva realized that they needed to secure an income for their old age.

Eva and Mirko owed 13,000 HRK (\$2,166) and 15,500 HRK (\$2,583) respectively to the National Pension Fund (Mirko Lukačević, personal communication: February 16, 2004). It was not easy to obtain the 30,500 HRK (\$4,749.90) to pay their combined debt. They cultivate only 8 hectares of land, on which they produce only enough to feed four milking cows and some calves. Selling third grade milk and producing milk below the production support level had never before provided sufficient income to pay their debt and their costs of living. However, once the decision was made they found ways to make the money. Part of the money came from the sale of milk and part from selling some cows (Mirko and Eva Lukačević, personal communication: May 1, 2004). In the spring of 2004 they started receiving their agricultural pensions of 820 HRK (\$136) per person per month.

Although this is not much money, with the farming resources they have available and with some physical ability left to work, Mirko and Eva are convinced that they will be able to support themselves. They continue to cultivate the land with their old tractor and farm machinery and to produce milk. Mirko enthusiastically says the 1,600 HRK

they get together every month as a pension is enough to buy seeds and fertilizer for the next planting season. In previous years, they did not have enough money to make these purchases, but had to buy them on credit like everyone else. They feel fortunate that *Napredak* and other agricultural supply stores in the village allow delayed payments (Mirko and Eva Lukačević, personal communication: May 1, 2004).

Household head: Josip Kobaš

The elderly household of Josip and Luca Kobaš, ages 68 and 64, has a much better financial standing than that of Mirko and Ana (for the household profile see Table 6.1g, page 363). Although they do not have children nearby to help them farm, they do not have to work as hard as Mirko and Ana. They have savings and both receive farming pensions. Josip receives 1,020 HRK (\$170) and Luca gets 820 HRK (\$136) a month, which is enough income for them to live on. Their only daughter lives in Germany with her family. They had two sons, but both died many years ago in a car accident, which put Luca into black clothes for the rest of her life. Today, she enjoys her two grandsons who often come to visit from Germany.

The Kobaš's accumulated savings in their earlier farming days under the socialist state by growing sugar beets. At that time, the Županja refinery was buying all of the sugar beets that farmers could produce. The quality standards for root crops were lower, as were farmers' input costs, and the price per kilogram was better than what the farmers are paid today. Accumulated in the past, this wealth allows the Kobaš' to downsize and grow only enough produce to feed themselves. They have been thinking about downsizing even more after listening to broadcasts about current farming policies that ask elderly farmers to rent or sell their land to younger and "more serious" farmers. Learning

what a farmer must do to be competitive, Josip and Luca decided to sell few cows and keep only one or two. They do not desire to compete in the market. Instead, their goal is to continue to cultivate their 6.9 hectares of land as long as they are able to work.

When they were younger, they used to take their eggs, milk, cheese, and vegetables to different markets. Luca went to the Županja market, while Josip traveled to Zagreb to sell fresh produce at one of the large Zagreb markets. As they got older, they quit selling at the markets, but they still go to shop. They often visit an open market in Babina Greda on the 10th and 25th of the month. There, local farmers sell their animals and handiwork such as shoes, caps, and wool jackets. Josip and Luca do not necessarily go to buy things; sometimes they just socialize (Josip and Luca Kobaš, personal communication: March 4, 2004). In general though, sale of produce at open markets is a thing of the past. During my fieldwork, only one Štitar farmer went to the Županja open market to sell his Christmas trees and blackberries. The reasons for this are varied and include competition with inexpensive produce in Bosnia. People can also buy cheap produce in foreign chain stores that emerged after the war in the 1990s. Thus, most Štitar farmers do not sell in open markets. Instead, in addition to selling under contract, they also sell some surplus corn, small grains, and fodder on their farms.

In general, low market households produce less than 3 production units, which makes them "non-market-oriented" according to the Ministry and ineligible for payment support. They vary in how much of their income is based in agriculture. Many elderly households make enough income to live on by combining farming and small agricultural pensions, while others rely on employment and other non-farming incomes. Elderly households produce some surpluses, while other low market households produce

primarily for their own household consumption and occasionally sell a few piglets or some fat pigs. Also, these low market households whose members are younger than 50 for women and 55 for men usually cultivate less land than elderly farming families. While elderly households often own a tractor and other necessary equipment, the younger low market households are more likely to hire or trade for these services.

Based on my study of elderly households two important points must be made. First of all, my case studies suggest that the elderly prefer to secure pensions from the national fund rather than to apply for the Ministry's Program of Income Support. I can suggest three possible reasons for such a preference: the lack of information about the income support program's existence; the requirements of the program, which are difficult to meet for many elderly farming households; and the fact that the Ministry's retirement income support is too small to fully support an elderly couple. Secondly, the case studies also demonstrate the elderly households' determination to continue farming as long as they are able. They do not decide to quit farming their several hectares of land as the policy administrators expected they will, but rather continue to produce enough grain to feed their pigs and chickens for their own household consumption. (It would be interesting to know how many households have applied for support since my fieldwork concluded and since the Ministry increased the amount of the income support).

All the above agricultural households, regardless of the degree of their market orientation, use similar methods to diversify their household income between farming and non-farming activities. They also diversify their agricultural production by growing crops and raising livestock. Most households keep gardens and many have an orchard or just a few fruit trees in their yard. They all produce part or most of their own household

consumption and they all feel the pressures of competition and the global market. Also, as with the smallholders Netting describes, Štitar family farmers balance their household consumption against surpluses. They

calculate their interests over long spans of time, foregoing immediate benefits as might come from cash-crop specialization in order to lessen risk in short term. Savings in order to buy land and investment of effort and capital in land improvement are regularly made to secure the interests of future generations and of the elderly (Netting 1993:17).

Rather than choosing to focus on one crop that may bring higher monetary returns in the short-term, most Štitar smallholders continue to grow traditional crops for which production and sale are less risky.

A hesitation to adopt innovations can be found among farmers of all ages, in response to the risk and uncertainty involved in accepting new crops and technologies. Most smallholders continue to grow traditional crops, securing a household subsistence component, which is a basis of their long-term existence. Netting points out that

though some food may be purchased and a substantial part of their agricultural produce may be sold for cash, there remains a subsistence component necessary to household maintenance that is self-provisioned. The integration of smallholders into the market economy is never so complete that they are fully dependent upon it (1993:83).

Apart from producing subsistence, Štitar smallholders have always been partially involved in the market, selling some surplus and cash crops in a local market or among themselves. They have never fully engaged in the market, or restricted their production to only one crop. Instead, they maintained subsistence production as a way of securing their household from the unpredictability of weather, economic systems, and political regimes. Their subsistence production and their income diversification have allowed

them to survive. The directions that current agricultural policies push these subsistence producers are discussed in chapter eight.

Off-farm employment as primary income

Slightly over half of the village, (261 households, or 51 percent) does not own any land and have very little or no agricultural production (see Table 1.2, page 27). These households diversify income in legal or unregistered, full-time, part-time, or seasonal employment. Some receive pensions or remittances from children or relatives working abroad, and others live on social welfare. The majority of non-agricultural households have a vegetable garden where they grow some of their own food. However, most of the food they eat is purchased.

Household head: Franjo Topić

For instance, Franjo Topić, age 36, supports a family of four while working as a delivery driver for the Domil milk factory in Županja (for the household profile see Table 6.1h, page 363). Franjo's salary, which ranges between 1,500 and 2,200 HRK (\$250–366) per month, is the only family income. His position was better off before the factory was privatized a few years ago. The new owner not only cares less about replacing the outdated and insufficient equipment, but he also pays less and does not give overtime. By not signing a collective agreement with employees private business owners can refuse workers' benefits, pay the minimum salary and occasionally pay additionally under the table, refuse to give vacation days, and make employees work overtime without compensation (Franjo Topić, personal communication: June 24, 2004). As a privately

owned business, Domil abuses its workers in all of these ways. Croatia is trying to solve these problems as it works to achieve EU membership

Given this work situation, Franjo works as many hours as he must in fear of losing his job and his only means of supporting his family. He knows that with only a high school degree he is easily replaceable, particularly given the area's high unemployment. Josipa, his wife, has not had any luck in finding employment. Like most of Županja's unemployed women, she stays at home to raise their two children and to tend a small garden that belongs to Franjo's ailing father. They have a building in the back yard where they could raise pigs, but the building is not completed. Josipa would not mind feeding pigs and chickens so that they could eat or sell them, but since they have so little income and no land they cannot afford to finish the building.

With both children in school and only a house and a small garden to tend, Josipa has a lot of free time. She prefers to spend it in cleaning the house, cooking meals, making deserts, canning, or embroidering. She often prepares the wild game that Franjo brings from his hunting trips, or the fish that her uncle brings to their home. Once a week, her mother comes for a visit and takes her grocery shopping or just brings presents for the grandchildren. Occasionally, Josipa helps one of her friends kill chickens. She often brings a chicken home in exchange for her help. In addition, sometimes during the summer months, Josipa makes a small income by selling watermelons at the road stand that she and her children set up on the main village street. Her cousin grows the melons and lets her sell them, giving Josipa part of the money from these sales. Franjo also makes a little additional money by selling firewood for a friend, who also lets him keep part of the earnings. These little presents in food and occasional help of their family and

friends, allow the Topićs to make occasional supplemental income and to get by on their small income.

Household head: Matej Tomić

Unlike Franjo, who has a low-paying but legal and full-time job, Matej Tomić, age 35, has not been able to find employment in the area (for the household profile see Table 6.1i, page 363). Though he grew up in Belgrade in Serbia, he married Jasna, a Štitar resident. They originally lived and worked in Germany, where Jasna's parents live. When the first twins were born, Jasna came to live in Štitar in the house her parents built for their retirement. Matej continued to work in Germany for a few more years, until he returned to Croatia to be closer to his family. He began taking on random construction jobs in the Županja area. When the second twins were born, Matej felt that he needed more job security. Since one of Jasna's uncles in Zagreb needed an assistant to help him install interior walls, Matej left the family again to work as an unregistered assistant. He was paid for his work under the table. Although the pay was very good, it did not bring any health benefits for his family. Matej started thinking about starting his own business, and at the end of 2004, when he had built up his clientele list, he registered his own interior construction business. The work is still in the Zagreb vicinity or at the coast, so he and Jasna have been thinking about moving the family to Zagreb. However, moving away from the family and home is not an easy decision, so the Tomićs are still living in Štitar (Matej Tomić, personal communication: April 2, 2004 and April 28, 2004).

Some non-agricultural households own enough land for a vegetable garden and raise a few pigs and chickens for their own consumption. Since working incomes are often very modest and provide only the simplest living for a family, the ability to grow some

food comes in handy. Interestingly, some of the reported pensions are greater than the salaries of these young families, especially if the pension is foreign-based. Many of the non-farming families are challenged by either not being able to find a full-time employment, or having a job that pays poorly. On the other hand, there are also those non-farming individuals who fought in the last war and managed to secure decent military pensions for themselves and their families. Some individuals certainly earned their pensions, but unfortunately, there were also people who knew the system well and had friends in positions of power who helped them to secure military pensions without being in the war. For those who did not manage to secure some type of governmental payments, employment opportunities are better away from the village but the costs of living are higher too. Hence, most families decide to stay in the village, near other family even if it means being unemployed and making modest incomes in diversified activities. Having family and friends living in the same village, or nearby, means having someone to rely on when times get difficult.

Before comparing the agricultural and non-agricultural households it is important that I mention a segment of non-agricultural households that was not represented in my sample. Households that live on welfare, or engage in illegal and/or unlawful activities, typically did not give their consent to be interviewed. Some of the welfare-supported households initially agreed to be surveyed, but did not agree to be randomly visited for a year. I believe the reason I was able to conduct a preliminary survey was that I spoke with women in the absence of their husbands. Once I asked for consent for a longer study, wives had to talk to their husbands, who did not agree to participate. My estimate for these household numbers in Štitar is equal to my refusal rate of 8 percent, or 51

households. My initial sample included three households whose members were not permanently employed and I was not certain from the census what kind of income they made. After their refusal, I chose other households who had given me their consent. These replacement households all had some kind of income, even if it was from unregistered employment. Therefore, the households with the most dire financial situations are not represented in my sample.

In order to answer my fourth research question, we used several statistical tests to explore the difference in household income as it relates to degree of market involvement (for a detailed description of the statistical tests see Appendix D, page 364). I first used the `svyglm` function from the `survey` package in R, because this function respects the sample design. The output revealed that there is a significant linear trend in households' income as a function of market involvement. Since fitting such an ordered factor assumes that the different market categories are equally spaced, which in fact is not appropriate for my case, I used Helmert contrasts. The output of this test revealed that:

1. The income of low market households is not significantly different from those with no market involvement.
2. The income of medium market households is higher from the average of no and low market households.
3. The income of high market households is also higher from the average of the no, low, and medium market households.

However, since the different categories did not have the same number of observations in them, these results are somewhat questionable. I also noticed that the standard deviation steadily increases with the mean. Desiring to avoid the possibility of unequal variances

contaminating the statistical test for difference in means with linear distribution, I used two additional distributions in the analysis—lognormal and gamma. In both cases, the conclusions are exactly the same as they are for the normal-based model.

Summary

This chapter continues to explore strategies with which Štitar farmers manage their resources according to the general economic situation and political circumstances that surround them. It also explores their production goals and offers explanations for their rejection of innovations. I emphasize the importance of subsistence production and partial market orientation in giving the smallholders ability to resist political and economic fluctuations. Their subsistence orientation also gives them relative independence from other producers and markets. Unfortunately, current international and national agricultural policies push the farmers away from these security strategies and toward short-term profit-making development which may not be viable in the long-term. Despite directions from the policy administrators to the contrary, most family farmers I studied continue to follow their own production goals and are careful about accepting innovations. They find more security in growing traditional crops which they are able to sell, even if they sell them for less than what they would like. The currently unstable markets in Croatia and the fear of not being able to pay debts prevent the majority of Štitar farmers from taking advantage of the loan programs the Ministry offers.

Despite their degree of market involvement, all the Štitar farmers face similar challenges. They have a hard time finding buyers willing to pay fair prices. They are frustrated because the value of their crops and labor falls as their input costs increase and

their profit margins shrink. They are pushed to expand, adopt a new crop or exit farming altogether. Some Štitar farmers are expanding, but only as much as they are able to afford with their own finances. Some farmers are changing their production goals by downsizing, but no one completely abandoned farming during my fieldwork. Further discussion on what the Croatian policy officials want Štitar farmers to become follows in chapters seven and eight.

In regard to my fourth research question, I provide empirical evidence to the claim that household incomes vary significantly as a function of market involvement. For instance, the income of low market households is not significantly different from those with no market involvement, but the incomes of medium market households are higher and of high market households still higher.

Lastly, chapter six continues exploring characteristics of Štitar farmers that resemble Netting's sustainable smallholders. The fact that they rely on some external inputs such as fertilizers and seeds does not exclude the possibility that they are sustainable, as they use the products efficiently and without the need for large capital investments. Their income diversification in farming and non-farming activities assures protection against risks and increases their resilience. Lastly, they forego the immediate benefits that might come from cash crop specialization. Instead, they accumulate savings and invest in land and farm improvements for future generations. Other practices that make Štitar smallholders sustainable are explored in the following chapter.

Intensification and labor productivity

Traditional stereotypes of small-scale, peasant agriculturalists are that they are “unproductive,” in that they use too much labor, they do not produce large surpluses for the market, and they do not make “rational” economic and scientific decisions about production and innovations. This chapter's opening story contradicts such characterizations by chronicling a dairy farming family who modernized their production, experimented with new knowledge, and continued to invest mostly labor rather than machinery in efforts to produce better quality milk. This family expanded their dairy production as the government suggested, but only to levels that could be managed within the means of their own labor. Despite the implemented changes in technology, they have not been able to continuously produce top grade milk for reasons that may be tied to broader issues such as the handling of the milk when it leaves their farm. I will explore the complex causes and effects of this outcome later in this chapter.

Modernizing while staying small

Ivan Dominković is one of the descendants of the *zadruga* of Đure Dominković that was once located next to the present-day village church. He and his two sons, Ivica and Antun, are dairy farmers. Ivica studied for a degree in veterinary medicine, but quit in his fifth year when his mother passed away. Antun finished high school and has been on

the farm since. They milk nine cows and produce all the feed themselves. Although Ivan is the *gazda* of the household, he lets Ivica and Antun run the milk production as they see fit. As an elderly dairy farmer, Ivan follows older methods of milk production that do not involve using factory-produced feed mixes, milking disinfectants, and mastitis treatments. In the past, the milk Ivan produced was acceptable to the milk factory, which at that time did not have rigorous quality standards. However, those times have passed, and Ivan realized that it was better if he allows his sons to decide how they want to produce milk.

Ivica and Antun began to experiment with modern dairy science practices in the mid-1990s. The first change they implemented was to renovate their stable according to the most current recommendations. They installed rubber floors which allowed them to get away from using straw as bedding. It also made the cleaning of the stable much easier, as the floors could be hosed off. Their stable renovation projects also included a new arrangement for the cows. They were tied in two rows, facing each other, with a path for easy feeding between the rows. Behind the cows they built a urine and dung ditch and covered it with metal grates. The ditch connects to an outside tank which they regularly empty. Spreading liquid manure on the fields gives them an advantage over farmers who use dry manure, because in liquid form the minerals are immediately available to the plants. They also installed indoor plumbing in the stable which delivers water directly to the cows. Even with all these improvements, the Dominković stable is not up to the current standards but it nonetheless is one of the most modern in the village.

When they decided to become serious about milk production, Ivica and Antun purchased several Holstein cows. The government promoted these cows as better genetic

stock than the traditional Simmental breed. It imported the Holsteins from Austria and allowed farmers to pay for them over several years. The Holsteins, however, proved to be poorly adapted to Štitar dairy conditions. Their low-hanging udders were often scratched while grazing, and their low disease resistance proved problematic in Štitar's moist, dark, and poorly aerated stables. Some cows even died before the farmer was able to pay them off. Given these problems, the farmers began breeding their Holsteins with the Simmentals. Today, most of Ivica and Antun's cows are cross-breeds (Antun Dominković-Rundin, personal communication: August 13, 2004).

As the milk grading system became more rigorous and modern dairy science grew in importance, Ivica and Antun implemented more changes. They built an additional room at the entrance to their stable that has ceramic tile walls and floor, a sink with a hose, and a new wall-mounted milking unit. They decided to invest in the better milking equipment after they read about the effects milking equipment has on milk quality. They also purchased a cooler, which enabled them to keep the fresh milk at the recommended temperature of less than 5 degrees Celsius until the milk truck arrives. They have also been experimenting with the application of milking disinfectants before and after milking, as well as with some other practices they read about. Most of their knowledge comes from reading a milk production magazine published by the government, but they also learn by talking with other farmers and with dairy specialists.

They began to pay more attention to the milking regime. Regardless of who was milking the cows, the routine remained unchanged. Ivica and Antun knew how important it was that the preparations for milking and feeding began at the same time every morning and evening. If done properly, the cows became accustomed to a regular

milking schedule and would thus release milk at that time every day. Milking always began with the same cow—the highest milk producing one—and ended with the lowest producing cow. The cows were prepared in groups of two. Antun cleaned the teats with lukewarm water and patted them dry with a clean rag. He milked the first few strips of milk on the floor, also known as forestripping, to remove microorganisms that live at the tip of the teat, and washed it off into the drain. After both cows were prepared, Antun attached the milking cups, massaging the udder to encourage the cow to release milk. He closely watched the stream of milk in the clear pipe and when it became thin, he turned the power off, removed the cups, and moved onto the next cow.

Although they had been experimenting with the application of milking disinfectants, I never actually observed Antun using them in his milking routine. He said that they quit temporarily because they had not noticed any improvements in the milk quality. They instead had noticed that the disinfectant was drying the teats and causing the skin to crack. This type of physical damage provided an easy entry for bacteria that cause mastitis, which is why the brothers decided not to use disinfectants. Instead, they were occasionally applying a remedy Ivica made by combining traditional knowledge and modern science. He mixed disinfectant and pork lard, which farmers commonly used as a mastitis treatment. This ointment disinfected and kept the udders moist at the same time.

Contemporary dairy science treats mastitis as a serious problem in milk production for several reasons. First, it develops and progresses quickly and it easily spreads from one cow to another with improperly cleaned equipment and hands. Second, it could be difficult and expensive to treat, especially if ignored for too long. Third, it reduces the

quality of the milk as the inflammation increases the somatic cell count, which then decreases the milk's price. Dairy experts advise farmers not to mix the milk of an ill cow with that of healthy cows. However, most farmers were not conducting mastitis tests regularly enough to catch the infection at its earliest stage. The inflammation usually progresses so rapidly that the next day's milk would have small yellowish particles, which experienced farmers were able to notice. At that point, most farmers stopped milking and started treating the cow with pork lard. If the milk particles were not too large, they would not separate the milk from the ill cow, which in the new quality analyses does not pass unnoticed. Only a few Štitar dairy farmers acknowledged understanding that the somatic cell count increases even before the milk starts to coagulate, which is why it is important that they catch the inflammation early. Ivica and Antun were among the minority who were careful in applying preventive mastitis measures and trying to identify the inflammation early so it would not spoil their good milk.

A few years ago, the brothers battled mastitis in their stable, and today they employ preventive methods as recommended. Instead of paying for expensive veterinary services, they purchase the treatment and apply it themselves. Ivica's veterinary medicine knowledge is of benefit in such situations. Occasionally, they still have the inflammation breakouts, but they treat the sick cows before the inflammation spreads, they also pay more attention to milking hygiene, and they discard the spoiled milk outside of the stable. However, they did not take this many precautions on a regular basis because once they were able to get the inflammation under control they stopped using disinfectants. Antun said,

the measures we were taking were too expensive, because we did not meet the goal. We never produced extra grade milk. We had first and second grade, occasionally even third, but never the top grade. So, we don't pay attention to the hygiene as much as we used to. There is no point in it because if we do everything they tell us to do, they still don't handle our milk properly (Antun Dominković-Rundin, personal communication: August 13, 2004).

Ivica and Antun were not the only farmers who were not content with the present milk politics. Most farmers blamed the government and its milk quality system. Ivica and Antun were different from most farmers because they acknowledged their responsibility in not producing top grade milk. However, like other farmers, they seriously doubted that the milk lab and milk processing plant were treating them fairly as milk producers. The reasons for their doubts were many. For instance, the milk collection truck was often leaking from its own cooler when it arrived at their farm. Ivica and Antun had a hard time believing that milk was staying cold in the truck cooler. Also, the driver was taking individual milk samples with a soup ladle, which he did not disinfect between dairy farms. Antun and Ivica knew that a dirty ladle could contaminate their samples thus leading to a misunderstanding of the true milk quality. Furthermore, the driver did not have a cooler in which to keep the samples he collected at the correct temperature. Instead, he kept the sample tray on the dashboard while collecting milk from other dairies. With such obviously poor handling of the samples, the Dominković brothers were never able to justify investing more to produce top grade milk.

Despite milk policies that did not seem to favor farmers, the Dominković brothers produced better quality milk than the majority of the village. With an average price of 2.20 HRK per liter and production between 5 and 7 thousand liters a month, Ivica and Antun generated a household income that was sufficient to support a family of three members. Antun said that they would never quit producing milk or stop experimenting

with innovations. He hoped that with the better qualities of dairy breeds and his family's knowledge it was only a matter of time until they would meet their goal to produce top grade milk.

With such a will to succeed, Ivica and Antun had the best chance of being a model for other dairy farmers in Štitar. They needed a little more reassurance and persistence in continuously following good milking hygiene. This they found through their cousin, Mirko Gašparović, who is a successful small dairy farmer in a neighboring village. Ivica took me to visit this cousin, and what we saw there broadened Ivica's mind. The three generations of the Gašparović family have joined their efforts in producing extra grade milk. For the six consecutive months prior to our visit their milk quality remained the same. Their success shows that not all dairy specialists' suggestions are necessary to improve milk quality.

Mirko did not build a new stable, nor did he update his old one. Instead, he continued to use his old, dark, and moist stable. What then made him successful? Mirko is the youngest member of his household, and he, his parents, and his grandfather fully committed to proper milk production according to the highest handling recommendations. They purchased one of the best and most expensive milking machines. They diligently disinfected teats before and after milking; they washed their hands in warm water between handling cows; and they moved quickly, efficiently, and quietly between cows with minimum disturbance. They applied mastitis test regularly and discarded spoiled milk outside of the stable. They emptied milking buckets after every cow and carefully poured the milk in the cooler, which stayed closed nearly all the time. They strictly followed the recommended ratios of grain and green feed. They

produced their own feed, roasted their own soy, and collected alfalfa while still somewhat green and moist. They also treated every cow for mastitis during its dry period.⁶⁰ With applying everything that dairy science generally suggested, except for building a new stable, Mirko and his family had good results. What we saw and heard from the Gašparović family made Ivica realize what he could improve in his milk handling practices. He went home, tried it, and was happy to report to me improvements in milk quality. It will be interesting to hear whether Ivica has continued to produce top grade milk.

Introduction

Farmers like Ivica and Antun, who have the proper knowledge and who experiment with innovations while accepting some and rejecting others, contradict the stereotype of backward and stubborn farmers who are unwilling to change. This chapter provides an understanding of the family farmers' production goals and their decision-making processes, which are often based on different rationale than those agricultural policies are built around. I continue to demonstrate that the leading force behind the household economy is not short-term profit making, but rather a need to provide for the household over the long-term. Moreover, by describing farming decisions and land cultivating strategies Štitar farmers employ, I illustrate what makes them partially intensive smallholders, which is the theme of my fifth research question. In order to understand how intensive they are, I investigate their labor productivity through the theoretical

⁶⁰Dry period is a period of three months before the cow will calf, during which she is not milked. Dairy science states that the cow is at most risk for contracting mastitis right after calving, which is why it recommends the dry period as the best time to apply preventive mastitis treatments. This is also the least expensive treatment.

suggestions of Netting (1993), Boserup (1965), Turner and Doolittle (1978), Turner and Ali (1996) and Shriar (2000). Based on the analysis of the household diaries collected during my fieldwork, I am able to investigate the labor productivity of various agricultural activities, as well as how labor productivity differs among the household types. In so doing, I describe some of the more labor-intensive practices that are either traditional or new developments.

Lastly, this chapter provides empirical evidence that Štitar farmers in fact work eight or more hour per day, which is contrary to the claims of policy makers. In answering my sixth research question, I reject the notion that some farms are too small to be viable and profitable. Instead of making such generalizations, I discuss the optimal landholding size among household types in relation to the household income sources. I begin this analysis by exploring what makes Štitar farmers sustainable in terms of cultural ecology.

Why sustainable?

Štitar farmers are rural cultivators who practice sustainable and partially intensive agriculture on relatively small farms. They employ an array of practices that Netting found to be performed among the sustainable cultivators he studied and they are as follows. The family household is a major social unit that mobilizes agricultural labor, manages productive resources, and organizes household consumption. The household produces a significant part of its own subsistence, but it also participates in the market, selling surplus wheat, maize, and sugar beets. In addition to farming, many households participate in some kind of craft making or other off-farm activities, as presented in the previous chapter. Moreover, Štitar smallholders make daily choices to allocate time and

effort, as well as tools, land, and capital to specific uses. These choices are made in regards to a changing climate, resource availability, and markets. The economic decisions they make are, in fact, intelligible in rational and utilitarian terms. They have ownership or other well-defined tenure rights in land that are both long-term and inheritable, and they restore and sustain fertility by practices such as thorough tillage, crop rotation, and fertilization. What follows are descriptions of specific practices they employ which Netting found among the sustainable smallholders he studied.

Štitar smallholders manage water saturation in the field by plowing a furrow in the middle of the field one year and a deeper ditch the following year (Netting 1993:30). The excess water these collect is then drained away into canals. They also regularly spread manure on some of their fields. Since not enough manure is produced to cover all the fields, farmers typically spread it where maize is the next crop in rotation. The manure is produced on the farm, loaded on tractor-trailers, and spread by hand forks (Netting 1993:37). Since manure spreading is a labor-intensive practice that requires more labor than is available in a family, a farmer usually accomplishes this task with a work party, which includes several farmers with their tractors and trailers.

Another practice that enhances soil fertility is crop rotations. Every several years, Štitar farmers include alfalfa in their field rotations. Alfalfa is cut as fodder for a few years and then plowed under before maize planting. For the next few years, maize and wheat are rotated. Maize always comes in a rotation after small grains, which are known to out-compete broad leaf weeds. Since maize absorbs the most nutrients from the soil, farmers spread manure on the fields where wheat was harvested and maize is to be planted.

Other sustainable practices include feeding the animals kitchen waste and spreading wood ashes from the stove onto the manure pile or in the garden (Netting 1993:32). Netting describes such practices that re-use materials produced on the farm as sustainable. By employing these practices, Štitar farmers are able to produce predictable and sufficient amounts of food for their household consumption, and they are able to keep their production stable over the long run. This makes their agricultural production sustainable in terms of energy use.

Furthermore, the smallholders Netting described cultivate small plots of only a few acres or less, on which they reach high yields because of intercropping. Growing more than one crop on the same field and at the same time requires large amounts of human labor and results in higher yields per unit of land than what is reached in extensive land use systems. Štitar farmers used to rely more on human labor and used to intercrop beans in maize, or hairy vetch in wheat before the introduction of tractors. However, in the last fifty years they almost completely mechanized their plant production, though not their animal husbandry.

The above findings have allowed me to conclude that Štitar farmers more strongly resemble the sustainable farmers Netting describes than those defined by the EU. What these farmers need to become in order to meet the EU policy visions of sustainability is presented in chapter eight. For now, I will explore how the sustainable Štitar farmers resemble the intensive cultivators Netting described who invest labor rather than machinery, allowing them to keep their energy expenditures at lower levels. The following section demonstrates what makes Štitar farmers partially intensive cultivators.

Why partially intensive?

The concept of agricultural intensification is not uniformly defined. For the purpose of this dissertation, I accepted Netting's definition of intensification as "a process of increasing the utilization or productivity of land currently under production" (1993:262). In other words, by means of intensive practices farmers often produce more per unit of land. However, the intensification in land use that Netting describes, in which smaller areas are used for longer time periods, has a cost. For resources to consistently produce large agricultural returns, a significant energy inputs are required. The cost is often human energy in the form of labor. Intensification thus entails increasing the amount of human labor applied per unit of land. Since greater yields per hectare are reached at the expense of more effort per person, the yield per man-hour falls (Netting 1993, Boserup 1965). In contrast, in extensive systems, the yield per man-hour increases but energy costs in the form of fossil fuel also increase. Therefore, this model of intensification contrasts with the process of expanding land under cultivation, the idea often found in many contemporary agricultural policies, including the CAP.

Speaking in favor of intensification, Netting claims that comparing energy inputs and outputs for modern and traditional practices "provided the revolutionary and quite unexpected evidence that ratios of energy expanded and returns of edible material declined under modern methods to the point where they were strongly negative" (1993:124). The high costs of fossil fuels lower the value of edible material. Netting (1993:262) argues that expanding the area under cultivation often decreases the output per unit of land because of the rising input costs. Since input costs rise at faster rate than yields, output per unit of land declines in extensive systems. On the other hand, the

intensive smallholders do not increase output by expanding land, monocropping, or becoming mechanized, but instead do so by employing practices as multicropping, diversification, terracing, or by building irrigation systems, all of which intensify human labor rather than non-renewable energy. By employing labor-intensive practices, rather than machinery-intensive, smallholders achieve higher total outputs per unit of land than what is achieved in the extensive systems of land use.

Not only is intensification as a term defined in various ways, but the existing methods of measuring it are poorly explained, thus making it difficult to accurately compare particular farming systems. Three categories of intensification measures can be identified: production intensity or land productivity per area over time (in tons or calories); cropping frequency expressed by the number of harvests per year or the relative proportion of cultivated land to fallow land; and the application of materials, labor, skills, technologies, or other resources (Shriar 2000). The first approach uses yields or output to measure intensification. Turner and Doolittle (1978) suggest using a 20-year time frame for output analyses, which is the main difficulty with this method as long-term written records of yields from individual fields are seldom available (Netting 1993:264, footnote). Hence, when faced with unavailable yield data, scientists have used surrogate measures, such as the cropping frequency. With the inherent difficulties in measuring intensity, for the purposes of my studies I attempt to define the level of intensification of the Štitar farmers by using the surrogate measures first and I then discuss productivity per area over time in a separate section.

The most commonly used measure of intensification is frequency of cultivation, as described by Ester Boserup (1965). Boserup (in Netting 1993) measured cropping

frequency in a couple of ways. In one way, she defined five categories of land use, based on the length of time a parcel is cropped as compared to the time it is left fallow (Shriar 2000:306). According to her scale, Štitar farmers fall into the category of annual cropping, which is a low level of intensification. They leave their land fallow for a few months between the harvesting of one crop and the planting of the next. This category includes systems of annual rotation, in which one or more of the successive crops are sown grass or other fodder (Shriar 2000:306). Specifically, Štitar farmers plant maize in the spring in fields that were left to rest during the winter. After the maize is harvested in the fall they plant winter wheat which they harvest the following summer. After two or three years of a wheat/maize rotation they plant alfalfa for a minimum of three years.

Another measure Boserup uses to measure cropping frequency is the calculation of average cultivated area as a percentage of cultivated plus fallow area. Boserup stated that cropping frequency above 80 percent implies raising one or more crops per year on the same land. This practice predominates in countries with population densities above 64/square kilometer, regardless of technological level (in Netting 1993:268).

Although the data to calculate cropping frequencies of Štitar farmers is not available we do know their population density. The village contains 40.12 square kilometers (Statistički Ured Županja 2004) and is occupied by 2,608 people (RH-DZS-PS 2001), creating an average population density of 65 people per square kilometer. At this population density, according to Boserup, Štitar farmers may be starting to feel the effects of land scarcity. However, as Netting (1993) and Stone (2001) have asserted, population pressure is not the only factor that pushes farmers toward intensification. In the case of Štitar, when land as resource was abundant, I suggest that it was the agrarian

reforms, with their restrictions on the minimum amount of land that had to be cultivated by a farming household that pushed farmers to intensify.

The last measure of intensification left to explore is the use of labor, capital, or technologies as inputs. An increase in any of these, singly or in combination, on a constant land area may intensify its use (Netting 1993:262 footnote). In my study, I found that Štitar farmers often substitute portions of mechanized crop production with human labor. For instance, a farming family occasionally decides to hoe their field instead of applying herbicide. Moreover, they spread manure with hand forks, collect alfalfa manually, or sometimes they even use family and exchanged labor to harvest maize and sugar beets. Therefore, instead of employing non-human sources of energy in cultivating bigger fields which save labor and increase the production per hour, Štitar farmers make choices to input more labor and time per unit of land. By strategizing with such practices that often are intensive, in order to minimize the risk of food shortages, Štitar family farmers may produce more per unit of land than is produced under more extensive systems.

We could speculate that the net output per hectare of Štitar farm is higher than that of extensive farming systems, because they are able to decrease their inputs of fuel and machinery through the supplement of human labor. In order to confirm this assumption, we would have to compare the input costs of extensive farming systems with those of Štitar family farms. Unfortunately, this data is unavailable. However, my time and labor allocation data allows me to measure the level of intensification by analyzing the number of work hours per year and to compare them with those of the intensive farmers Netting described.

How much do Štitar farmers work?

Many anthropologists have reported the time and energy expenditures of farmers engaged in agriculture and other activities in pursuit of their household incomes (Borgerhoff Mulder and Caro 1985, Netting and Stone 1985, Thomas 1973, Pimentel and Pimentel 1996, Bayliss-Smith 1977 and 1981, Clark and Haswell 1970). Applying their suggestions and calculation methods, I carried out a time and labor allocation study and data analysis for the Štitar smallholders. Figures and accompanied Tables 7.1a and 7.1b below provide an information about the activities in which men and women of the four household types engage and their hours spent in these activities (for a description of the statistical calculations see Appendix E, page 371 and for a list of the activity types see Table 5.3, page 355).

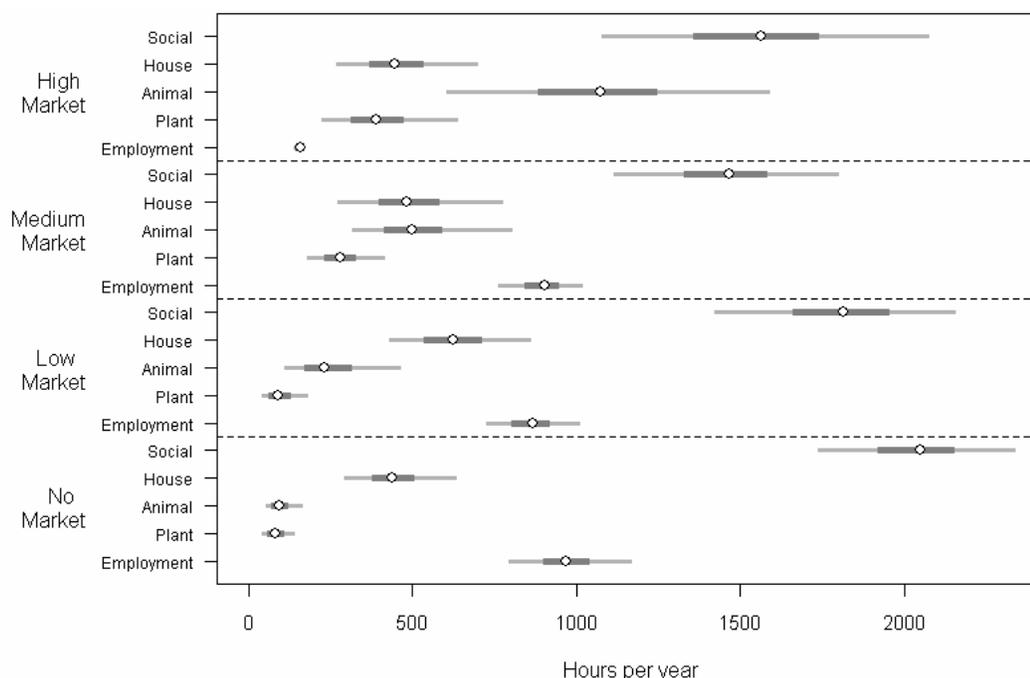


Figure 7.1a – Point and interval estimates for work hours per year for household types in Štitar, 2004

Table 7.1a – Average work hours per year and per day for household types in Štitar, 2004

	Household types			
	No market	Low market	Medium market	High market
Work hours/year	1,586.7	1,820.0	2,169.3	2,074.0
Work hours/day	5.2	6.0	7.2	6.8

During the 12 observed hours, individuals of all household types on average spent the majority of their time in individual and social activities. Typically, individuals in agricultural households spent less time in these activities than individuals in no-market households. It is interesting to notice that individuals in medium market households spent the least amount of time in individual and social activities which is not a surprise, since the members of these households have full-time jobs and farm on the side. Consequently, work hours per year increased with market involvement (as shown in Table 7.1a), with medium market households spending the largest amount of time (or 2,169.3 hours/year) in some type of work activity. Individuals in all agricultural households spent about an equal amount of time in house-related activities. It is also noted that the amount of time individuals spent in animal and plant activities increased with market involvement, with individuals in high market households spending the most time in both of these activities. In contrary, amount of time individuals spent in employment decreased with market involvement, with no-market individuals spending the most time in these activities. Therefore, individuals in medium and high market households work more than 2,000 hours a year, or 7.2 and 6.8 hours a day respectively six days a week (see Table 7.1a).

While working almost 2,000 hours a year, the mechanized and market-oriented Štitar farmers labor almost as much as the pre-WWII Yugoslavian farmers who relied on

human and animal labor, as Bičanić reported in 1946 (in Clark and Haswell 1964:105, 124). Such comparisons suggest that the mechanization of Croatian agriculture, which took place in the 1950s, actually did not decrease the total labor hours. It most likely did decrease the hours committed to plant production, but since the Štitar farmers diversify income sources their total labor hours are likely the same as 50 years ago.

When dividing time and labor allocation by sex (as presented in Figure and Table 7.1b), it becomes clear that women across all household types spent more time in individual and social activities than men. It is interesting to note that women of medium market households spent almost an equal amount of time in these activities as men. Consequently, medium market women work the most hours per day among all household types, which is to be expected since they manage the farm and animals while the men are at work. Furthermore, men in no-market households spent more time than women in employment. This suggests that the majority of the workforce is men, which reflects the government census' findings that fewer women are employed than men in the Županja area (RH-DZS-PS 2001). Women generally spent more time in housework than men. Moreover, while only high market men spent more time in growing crops, all other men and women spent about an equal amount of time in these activities. Similarly, across all household types men and women spent an equal amount of time in animal care activities.

Lastly, it is interesting to note that no-market men and women work the shortest days among all households. This is related to high unemployment. Unemployed men and women who did not cultivate land socialized more, and no-market men typically spent more time hunting, and/or fishing. Conversely, farming men spent more hours in work activities than farming women. That number increases for both sexes as market

involvement rises, with men in medium market households working the longest hours per day.

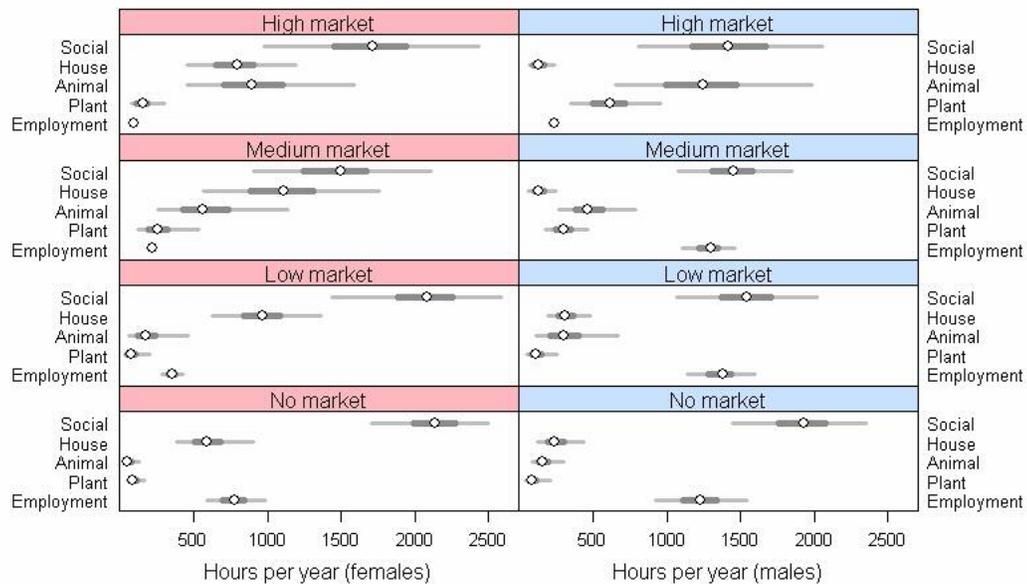


Figure 7.1b – Point and interval estimates for work hours per year for household types and sex in Štitar, 2004

Table 7.1b – Average work hours per year and per day by household type and sex in Štitar, 2004

		Household types			
		No market	Low market	Medium market	High market
Men	Work hours/year	1,708	2,093	2,185	2,220
	Work hours/day	5.6	6.9	7.2	7.3
Women	Work hours/year	1,497	1,551	2,144	1,919
	Work hours/day	4.9	5.1	7.1	6.3

In general, individuals in agricultural households work more hours per day and per year than individuals in non-agricultural households. Farming individuals work between 6 and 7.2-hour days, six days a week, yielding between 36 and 43.2 hours a week (Figure and Table 7.1a). If a 40-hour week (or almost 1,920 hours per year with a two week vacation and some holidays) is the norm, then high and medium market-oriented farmers

work as much as an average working person. This statement does not agree with the common mindset of policy administrators and the Croatian public that farmers who raise small grains and maize in small fields cannot be busy for 8 hours per day. It is true that growing these crops in small areas does not require 8-hour workdays. However, I claim that raising crops, when combined with other farming and off-farm activities, requires Štitar farmers to work as long or more than an average working person.

When compared with the work hours of the smallholders Netting (1993:107) describes, we see that the labor input of the mechanized Štitar farmers is somewhere between shifting cultivators who raise some cash crops and the highly labor-intensive Japanese farmers. For instance, Wilk (in Netting 1993:107) noticed that the shifting cultivators of tropical Belize increased the work hours of men to an average of 1,672 hours per year (Netting does not say how many days per year the Belize farmers work) when cash crops were introduced. Clark and Haswell (in Netting 1993:109) provide the average work hours for Japanese male and female farmers who work 2,780 and 1,918 hours respectively, in farming and non-farm related activities. The average working day of Japanese men and women is about nine hours. Štitar farmers work longer hours than the shifting farmers of Belize, but not quite as many hours as Japanese men and women. Based on such comparisons, we can claim that Štitar farmers are intensive cultivators whose labor hours are somewhat influenced by seasonal changes, more so in plant growing than in animal husbandry.

Agricultural seasonality

The diversification of household income between plant production, animal husbandry, and off-farm work allows Štitar smallholders to distribute their labor more equitably over the whole year. The work pattern in crop production is mostly affected by seasonal weather changes, whereas animal husbandry and off-farm employment change only slightly (see Figure 7.2). I divided the year in four seasons based on my knowledge of what farming tasks were performed at which time of year. The four seasons included: winter (December 16–February 29), spring (March 1–May 31), summer (June 1–September 15), and fall (September 16–December 15).

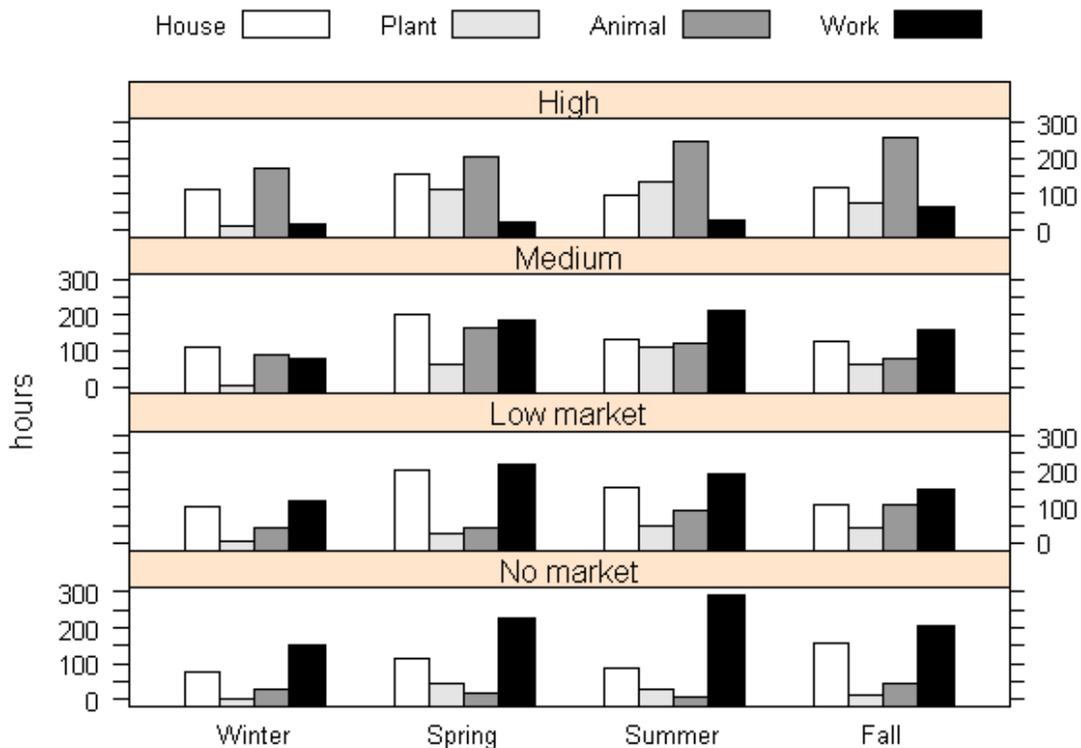


Figure 7.2 – Seasonality of labor as a function of market status

Note: Due to the fact that time allocation data was collected every two weeks for 12 months, there is not much data collected in each of the four seasons. Based on the limited amount of seasonality data, we did not have enough information needed to include standard errors with this figure.

We can see that across all three agricultural household types, the hours that individuals spent in plant production activities increased in spring and summer and decreased in the fall, after maize and sugar beets harvests were completed. Conversely, the hours individuals spent in animal husbandry vary across household types. Among high and low market households, hours spent in animal husbandry increased from spring to summer and slightly toward the fall. The increase was most likely due to taking animals to pasture, or moving some animals to the field house, in which case the farmers' time committed to animal care included traveling. Conversely, among medium market-oriented households, hours spent in animal husbandry slightly decreased from spring to summer to fall, but the hours spent in plant production activities and seasonal work activities rose. Hence, the hours committed to animal care decreases as the need for spending time in field activities increases. Lastly, the hours spent in employment activities remained at a low level throughout the year for the high-market households, while for the remainder of households they peaked in the spring or summer. They were at the lowest for all household types in the winter, which is when all seasonal and illegal temporary work is generally suspended.

It is also interesting to notice that individuals in no market and low market households spent most of their time in household and work related activities. This pattern is not a surprise as these households have smaller agricultural production that does not require as much labor investment as among high and medium market households. Furthermore, house activities in all household types, except for the no

market households, peaked in the spring when farming buildings need to be cleaned for the next crop. For agricultural households, house activities gradually fall toward fall and winter. Among all household types, except high market and across all seasons, time spent in household activities is higher than in plant related tasks. Only high market households spend most of their time in animal tending activities.

One final observation to make is that more work hours are committed to animal husbandry than to plant production across all household types and seasons. This trend suggests that caring for animals requires more labor hours than growing crops. Although animal care is more labor intensive than growing crops, Štitar farmers do not commit to only growing crops, but rather they continue to diversify their agricultural production. Seeking to explain this occurrence, several reasons come to mind. One is that animal care is less affected by seasonal changes, meaning that it can fill in for slack times in seasonal crop production. It also is a less risky part of agricultural production, and thus provides a measure of security for the household consumption and income. Diversification of farm and off-farm activities allows Štitar farmers to be less affected by seasonal weather changes and to be nearly fully employed on the farm year round.

Thus far, I have explored cropping frequency and labor inputs as measures of intensification employed by Štitar farmers. It is now time to investigate one last measure of intensification—land and labor productivity.

Land and labor productivity in theory

Net agricultural productivity can be expressed as the productivity of land per hectare per year, which is essentially yield; and as the productivity of labor, or the output/input ratio. Some authors suggest that long-term yield data is necessary in order to be able to track changes in agricultural intensity based on land productivity (Netting 1993, Shriar 2000, Turner and Doolittle 1978). However, as mentioned earlier, this data is seldom available. For my own research area, the only data that is available is that of yields for family farms and large-scale farms in Croatia, from 1994 until the present,⁶¹ published by the Croatian Central Bureau of Statistics (see Table 7.2).

Table 7.2 – Yields of three major crops for family farms and large-scale farms in Croatia, 1994–2003

	Yields, t/ha					
	Large-scale farms			Family farms		
	Wheat	Maize	Sugar beets	Wheat	Maize	Sugar beets
1994	4.77	5.47	36.80	3.36	4.34	37.09
1995	4.72	6.14	36.14	3.46	4.66	37.74
1996	4.67	6.61	41.98	3.38	4.99	44.61
1997	4.98	7.49	40.91	3.71	5.64	40.47
1998	5.29	6.49	43.15	3.89	5.12	41.28
1999	3.87	6.90	39.06	3.08	5.39	40.81
2000	5.30	4.78	21.78	4.05	3.82	24.12
2001	5.31	7.17	41.34	3.61	5.22	39.87
2002	5.09	7.76	49.67	3.96	5.92	44.28
2003	3.72	4.69	23.50	2.73	3.76	25.91

Source: RH-DZS-SLJ 2004. Table 16-5: Area under cultivation and production of some important crops.

The data reveal that yields of wheat and maize (or net land productivity in t/ha/year) produced on family farms are on average 26 and 23 percent lower, respectively, than the yields of large-scale farms. This is due to the fact that family farmers invest less in fertilizers, pesticides, and lime in the production of wheat and maize than the large-scale

⁶¹Data presented in Table 7.2 ends with 2003, which was the last year for which yields data were analyzed before my field work ended.

farms (MPŠiVG 2005:31). In the case of sugar beets, however, the situation is different in that net yields of the family farms are equal to the yields of the large-scale farms. This is so because for Štitar family farmers for whom sugar beet is a cash crop inputs of fertilizers and pesticides in sugar beet production are as high as those of the large-scale farms, thus resulting in nearly equal yields.

Another conclusion that stems from the table is that for the 9-year period, yields on family and large-scale farms have remained fairly constant, which means that nothing had changed significantly in the intensity of land use. If we wanted to see changes in land use intensification a 50-year yield record would be necessary, which unfortunately, is not available.

Yield records are also necessary in expressing productivity of labor, which is another measure of intensification that uses all agricultural inputs and outputs. Two theories define the relationship between intensification and labor productivity—a decline theory and an increase theory. In this dissertation, I follow the labor productivity decline theory as postulated by Boserup (1965) and adopted by Netting (1993). Boserup (1965) made a revolutionary claim which contradicted the postulations of the economists of her time. She contended that pre-industrial farmers were often capable of increasing their land's productivity by applying methods which allowed the land to be cropped more frequently and fallowed for shorter periods. Since such methods typically demand higher labor inputs per unit of production, they tended to be adopted only when population pressure and the resulting land scarcity forced farmers to work harder in order to maintain existing levels of subsistence. When a piece of land is cropped more frequently, farmers must devote more labor to each hectare of land.

Whether the labor productivity of Štitar farmers, who occasionally substitute certain mechanized practices with labor, is above or below that of the large-scale farms, I cannot know without having the input costs data of the large-scale farms. I claimed earlier that population pressure in Štitar is absent. In the past, it is possible that other forces existed (Netting 1993, Stone 2001) that pushed Štitar farmers to intensify, such as land confiscation and land ownership quotas that were introduced during communism. With the resultant limited land availability, Štitar farmers may have further intensified their agriculture. After the fall of communism, they were able to expand their land, though large tracts of land are still unavailable to family farmers who desire further expansion, mostly due to the unresolved property issues of the former nationally owned cooperatives.

I speculate that Štitar farmers must feel some land scarcity. This surmise is based on several facts. First, they have abandoned leaving land fallow longer than a month or two between harvesting maize and planting winter wheat. Secondly, some farmers have begun to grow new cash crops that are more labor-intensive (as described later in the chapter). Thirdly, some farmers, like Ivica and Antun from the chapter's opening story, have decided to increase their milk output by increasing their dairy cow herd to the point where it is still manageable by the available family labor and the yields of feed produced from their current landholdings. Lastly, other farmers have told me that they would like to increase their animal herd, but they cannot meet the feed demands from their available fields. Therefore, with limited land availability, some Štitar farmers intensify their labor by using the resources they have available. In particular, they increase their herd size or grow labor-intensive crops, both of which are recent adaptive behavioral changes.

Another important point to note is that Štitar farmers, like the farmers Netting studied, would certainly prefer a higher return on their farming labor if they would have enough land to cultivate (Netting 1993:117). However, since land has been scarce, they had to become involved in other non-farm activities, some of which bring lower returns on labor. Although agricultural intensification results in a reduction of labor productivity, activities such as domestic animal tending, crop processing, subsidiary crafts, trading, and unskilled wage labor occupations typically see much smaller returns on labor (Netting 1993:117).

Data presented in Figure 7.3 provide evidence supporting Netting's claim that farming labor provides higher returns than some non-farming activities. (For an explanation of the box plot symbols see Appendix D, page 358). It must be noted that the data include farming and non-farming incomes, in which case incomes of high market households come from farming activities only. The figure reveals that, on average, high market households have the highest annual incomes among all household types, at 160,000 HRK (\$26,660). Medium market households have incomes of 110,000 HRK (\$18,330) on average, whereas low and no market households have average incomes of 60,000 HRK (\$10,000) and 70,000 HRK (\$11,660) respectively. This statistical evidence is interesting in that it confirms what some farmers admitted to me: that their labor hours invested in farming are more valuable than those spent in industry or the service sector.

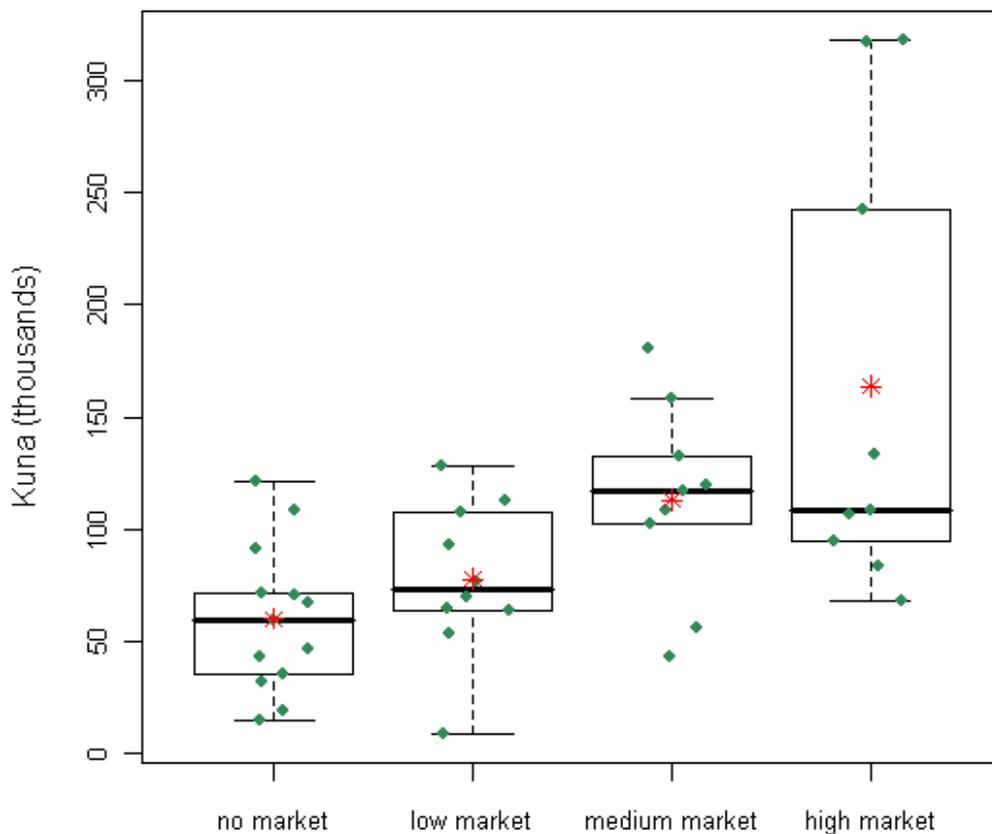


Figure 7.3 – Total annual household incomes by household types in Štitar, 2004

Based on these findings, there is justification for Štitar farmers to diversify their household income in farm and off-farm activities. However, there are other issues to address, such as what is the labor productivity of Štitar farmers? Is it lower than that found in the extensive land use systems? Does it vary between plant growing and animal husbandry? Next I offer a study of the agricultural inputs and outputs used by Štitar farmers during one-year period.

Agricultural inputs and outputs

In the absence of long-term yield records for Štitar, I use information that the farmers supplied in their household diaries during my fieldwork. I analyzed two sets of data. One was all agricultural inputs (fertilizer, seeds, labor, gas, subsidies, and others) and outputs (yields) of total agricultural production for all sampled households (see Figures and Tables 7.4a and 7.4b below). Another data set presented agricultural inputs and outputs in the productions of various crops and milk, as provided to me by a single farmer, Ivan Martinović. These results are presented in Tables 7.3a–e, page 379–381. Comparing these two sets gives us some ideas about labor productivity of Štitar farmers and of various areas of their agricultural production. Detailed explanations of the analytical methods I used are supplied in Appendix E. I used the following theoretical concepts to arrive at these labor productivity calculations.

When expressing the value of inputs and outputs in agriculture, a few questions arise. What unit is appropriate? What does one do with inputs like family labor, farming capital, and animals that do not leave the farm in a one-year cycle? Inputs and outputs have traditionally been measured in monetary value or energy expenditure. Expressing them in kilocalories requires actually measuring the energy expenditure of a person who is performing an activity, or using data obtained by others (Pimentel and Pimentel 1996, Norman 1978, Vaz et al 2005, Black 1971). Since measuring energy expenditure was not my goal for this research and since I was not able to find works from other authors who measured the energy expenditures of eastern European farmers, I decided to assign a monetary value in Croatian *kunas* (or HRK) to all the inputs and outputs.

With respect to what to do with certain farming inputs I used the theoretical suggestions and research experiences of Chayanov (1966), Barlett (1980) and Chibnik (1978). Chayanov criticized the use of traditional economic models to calculate labor efficiency for business firms. He suggested that farmers make decisions based on the gross product of the whole farm minus the actual cash costs. Actual cash costs do not include inputs like family labor that were not paid in cash (in Barlett 1980:141-2). Barlett applied Chayanovian calculations in her own case study among Paso farmers and concluded that his calculations, combined with qualitative assessments of agricultural options, provide the most accurate tool for understanding agricultural decisions (1981: 138). In her case study, neither traditional economic nor Chayanovian methodology worked best in understanding the farmers' decisions. If both methods are equally valid, Barlett suggests using the Chayanovian model only because traditional economic calculations involve much more work on the part of the researcher (Barlett 1981:149).

However, Chibnik (1976) argues against certain Chayanovian postulations and states that

since Chayanov thinks that no monetary value can be imputed to household labor and that the categories of 'wages' and 'prices' are interdependent, we can reasonably infer that he would argue that no monetary value can be assigned to crops grown for home consumption (Chibnik 1976:565).

Chibnik is right to point at the similarity of subsistence production and family labor, because a farmer pays for neither. The value of the subsistence production for the farmer cannot be ignored, because a farmer places a greater value on the subsistence crop than on the market price of the cash crop by the simple fact that he plants subsistence rather than cash crops (Chibnik 1976:566). Mellor (in Chibnik 1976:568) asserts that "the farmer correctly attaches a higher price to production for home consumption than to

production for sale since he in effect pays the retail price for what he buys and receives the wholesale price for what he sells." Therefore, in my study I assign a monetary value to the subsistence base; express labor productivity with and without free labor; and I use market (or retail) prices, rather than the wholesale prices, to express the farmers' value of their produce (for an explanation of the statistical calculations see Appendix E, page 372).

My calculations revealed that among Štitar households, the combined average labor productivity of crops grown and animals raised declines with market involvement (see Figure 7.4a below). It must be noted that this figure includes only agricultural income and expenses, thus excluding items like income from off-farm employment or personal and household needs. Since I was interested in learning if labor productivity changes as a function of labor type, I created two case scenarios. The first case includes all labor-free family and exchange labor, as well as hired labor—in the agricultural inputs. In the second case, I applied the Chayanovian principle and thus excluded free labor and included only hired labor in the input calculations.

It is interesting to note that only high market households have an average labor productivity rate above 1.0 (for an explanation of box plot symbols see Appendix D, page 358). The average labor productivity of medium, low and no market households varied between 0.3 to 0.9. This means that most Štitar farmers farm at a loss, which confirms their claims. For every 1 HRK they invest, they only earn between 0.3 and 0.9 HRK in return. These results are not a surprise to most European policy administrators and politicians, as I further elaborate in chapter eight. For that exact reason, farmers have always diversified their incomes between farming and non-farming activities, thus

making ends meet.

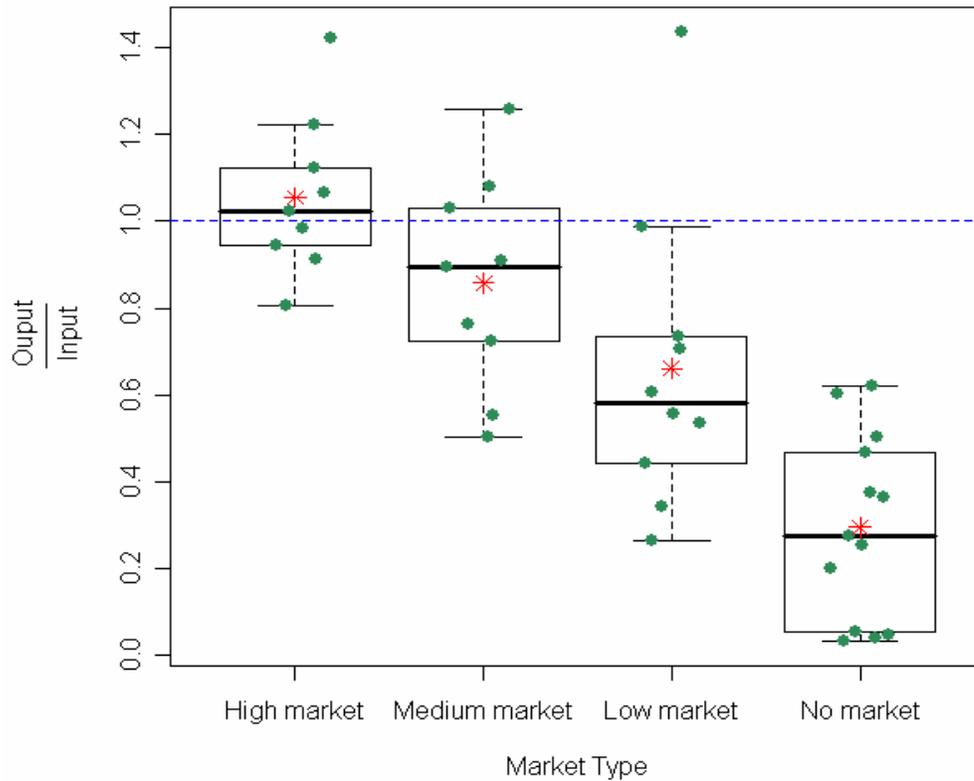


Figure 7.4a – Labor productivity of the sampled households, by household type, Štitar, 2004

Note on outliers: The one outlier in the high market type group is a farmer who claimed to have produced only what is profitable as long as it was making him money. This farmer had two agricultural productions that I knew were profitable. In order to keep his anonymity, I cannot name the two productions. The second outlier in the low market type is an elderly household that sold a few extra cows in order to downsize his operations.

Table 7.4a – Mean and median labor productivity of the sampled households, by household type, Štitar, 2004

	High market n = 9	Medium market n = 9	Low market n = 10	No market n = 13
Labor productivity				
Mean	1.05	0.86	0.66	0.30
Median	1.02	0.90	0.58	0.28

Connecting this finding with my claim that farming labor provides higher returns offers us an interesting argument. Although farm labor productivity is below 1.0 for most

Štitar farmers, the returns on farming labor still appear to be higher than wages earned as unskilled construction or industry labor. Generally speaking, the return on labor for Štitar inhabitants who have access to farmland is higher than for those who only have employment and no land. This supports the findings of other social scientists who compared returns to labor in agriculture with other non-agricultural vocations (Netting 1993:114–118). I would guess that most Štitar farmers are aware of these sorts of returns, which is why they continue to farm.

Another interesting finding is that applying the Chayanovian labor productivity model (see Figure 7.4b), which excludes free family and exchanged labor and includes subsistence production, does not change the relationship of labor productivity and market involvement. However, it does increase the labor productivity for all household types as expected. With this case scenario, the lowest average labor productivity is 0.51, which still keeps the most farmers below a break-even return margin. With these levels of labor productivity ratios, one could argue that the size of a production volume has an effect on productivity. However, I stay wary of such generalizations as I further elaborate in the later section.

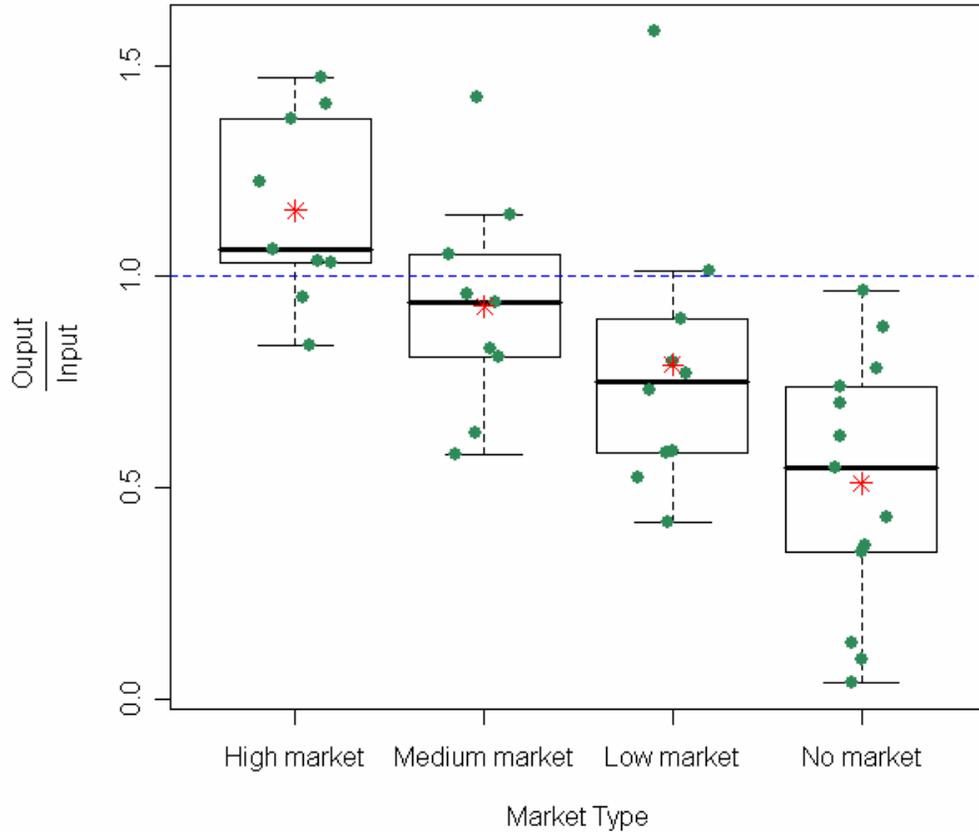


Figure 7.4b – Chayanovian labor productivity of the sampled households, by household type, Štitar, 2004

Note on outliers: The outlier in the medium market category is another household that sold a couple of cows to downsize. The low market outlier is the same as in the previous picture.

Table 7.4b – Mean and median Chayanovian labor productivity of the sampled households, by household type, Štitar, 2004

	High market n = 9	Medium market n = 9	Low market n = 10	No market n = 13
Labor productivity				
Mean	1.16	0.93	0.79	0.51
Median	1.06	0.94	0.75	0.55

Although my calculations were conducted on the basis of the monetary value of farming, from the statistical standpoint they are comparable with the studies that were based on the energy values of farming and food, because in both cases the values are expressed as ratios. Therefore, technically, I could compare my example with those of

Nettings, but the problem is that my calculations are composites and include all plant and animal productions. Netting's examples, on the other hand, are based on individual plant and animal productions.

Although I am not able to directly compare my results with Netting's, an idea of the labor production ratios of other farmers is informative. For instance, table 4.1 (Netting 1993:130) outlines the efficiency of slash-and burn maize production in three different countries: Mexico at 10.74, Guatemala at 4.84, and Nigeria at 6.41. The calculation includes some estimates of inputs for making the axe and hoe, and producing seed, as well as some mineral fertilizer in the case of Nigeria. Netting does not mention how mechanized these production systems are, but he implies that axe and hoe were used. It is interesting to note that Mexico has higher efficiency than Guatemala and Nigeria. Netting suggests that "local environmental conditions and differences in average field size and fallowing cycle may lead to a range of efficiency values" (1993:134).

Even more interesting is an example in table 4.3 (Netting 1993:135) which shows that the efficiency of wheat production in India at 0.96 with the use of bullock plows is lower than that achieved in the US at 2.41 and Britain at 3.51 with the use of mechanization. This is a rather peculiar observation, as I would expect a system that uses renewable energy sources to have higher efficiencies than its counterparts. One explanation here could be that the wheat yields in India are much below those in the US and Britain. Or, it is also not know if the input calculations for the US and Britain include all the actual inputs. In fact, Netting states that usually, but not exclusively, "the switch from hand to animal methods increases yield per men-hour by 71 percent, and tractor use gives an additional 61 percent" (1993:135 footnote).

Looking at these two examples in relation to my data reveals that the labor productivity of Štitar farmers is rather low. However, that does not place them closer to extensive farming systems, as the example of Indian farmers suggests. Rather, it raises a question of why that is so. One explanation I could offer is that yields of wheat and maize as subsistence crops are generally about 25 percent lower (see Table 7.2, page 249). That means that the outputs for most farmers are 25 percent lower than what they could be, except for sugar beet production and animal husbandry.

The problem with expressing the cumulative average labor productivity for all types of agricultural production is that my data does not reflect how inputs were allocated to each crop or animal product, nor does it contain output data for individual crops or agricultural products. In order to represent what might be typical labor productivity rates for specific crops, I present the inputs and outputs of a single high market-oriented household (see Tables 7.3a–e, page 379–381). These figures demonstrate that labor productivity is highest for wheat at 1.4 and lowest for sugar beets at 0.4. Such findings are not a surprise, since wheat production relies on fewer external inputs than sugar beets. It is also interesting to note that the labor productivity of dairy production at 1.0 falls somewhere between the two extreme crops. Also when unpaid labor is excluded in the calculation, the labor productivity of crops never increases more than 0.1, but of dairy farming it increases by 0.4. This result supports my claim that animal husbandry is the most labor-intensive sector of Štitar agricultural production. With these low labor productivity findings, I can only define Štitar farmers as partially intensive cultivators who work at least as many hours as the intensive smallholders Netting described and who employ some labor-intensive practices in combination with mechanized land cultivation.

Intensive practices of the Štitar smallholders

Gardening is the most common labor-intensive practice and generally the vegetables are grown primarily for home consumption. Gardening is mostly the women's arena, although I found a few men who were passionate gardeners. Most gardening operations are performed by hand, with only the plowing and tilling being mechanized. Farmers enhance the fertility of their gardens by spreading manure early in the spring before they plow. They plow once in the fall after the harvest and till in the spring to break the soil into smaller particles. After tilling, women use hoes and rakes to break up the soil particles even more and to make raised beds. Weeds, pests, and diseases are controlled by regular hoeing, weeding, and by physically removing the pests. The only pesticide women occasionally use is to control potato bugs. Since the potato is a diet staple, they cannot risk losing that crop. Thus, chemical treatments are used only as a last resort.

Some women prefer to use other natural formulations as fertilizer. Marta Kelava, for instance, told me that she makes a stinging nettle solution which she pours under her vegetable plants every week or two. An organic farmer I spoke with told me that he also uses nettle fertilizer in his commercial vegetable production. Generally, women compensate for not using pesticides by planting more than they need for their annual household consumption. For instance, my Aunt Ana always plants extra tomatoes and potatoes. She does not stake her tomatoes to keep them off the ground, and thus in some years her yield is greatly reduced by an early blight. However, she is not worried that she will not grow enough tomatoes to make sauce, because there is always some left from the previous year.

Aunt Ana also likes to have a drainage ditch in the middle of her garden (viz. Netting 1993:56). She makes her raised beds perpendicular to the ditch, so that every bed drains well. She also likes to plant alfalfa on half of her garden. She cuts it as fresh feed for her chickens and pigs. After the alfalfa is plowed under which supplies fixated nitrogen to the soil, her next vegetable crop yields better results. Moreover, like most village women, Aunt Ana collects most of her seeds. Every year she picks out the largest tomatoes and peppers, squeezes the seeds on a newspaper, and dries them in the sun. She also uses her own bean, potato, and garlic seeds. Many Štitar women plant their own seeds in late February or early March and they keep the seedlings indoors on sunny window benches until it warms up enough to put them outside. It is common knowledge that after Saint Joseph's Day, or March 20, the last frost has passed and it is safe to plant outdoors. Apart from the traditional crops, new and more labor-intensive crops are being introduced.

In the last few years, the Ministry has been promoting growing fruits and vegetables for production because they are believed to be more profitable in small areas and because they require human labor and not mechanization. By the end of my fieldwork, only one family had a new fruit production operation, which they established in 2003. Three brothers, Antun, Mirko, and Marko Gašparović were feeling the pinch of land shortages and began producing Christmas trees and blackberries. Between Antun and his family of four, as well as Mirko and Marko, there was enough labor available to meet the needs of these labor-intensive crops. Occasionally, the brothers relied on exchanged and hired labor.

The Gašparovićs established the Christmas tree production by using their own funds, yet for the blackberry orchard they acquired a Ministry of Agriculture's loan through the Program of Capital Investments. In 2003, they were approved for a loan of 50,000 HRK (\$7,812) with a three-year grace period of no payments (Mirko Gašparović, personal communication: November 10, 2004). They used a portion of the loan to purchase the posts and wire necessary to build a trellis system on a 1.5-hectare field just outside the village. They also purchased irrigation equipment for the entire field with the idea of harvesting water from the Sava River and storing it in tanks until it was needed in the fields. Once the 4,400-plant orchard was established, the Gašparovićs hoed the fields regularly, they mowed between the rows, fertilized, and sprayed, if necessary. They also carefully trimmed the bushes several times during the second year to promote a better harvest.

The first harvest came in the second year and was small, as expected. The brothers sold some berries, but gave away most to family and neighbors. During the first two years, Mirko, the most outgoing of the brothers, was working on forming a network with other blackberry growers and potential buyers of fresh fruit or blackberry wine. Through networking with other growers, Mirko was also able to learn more about the growing methods and challenges. When the first full harvest came in 2006, the brothers had a small group of buyers formed among their neighbors. In addition, Marko went to the Županja open market and sold some fresh berries. The rest they processed into the blackberry wine for sale.

Apart from intensive crops, animal care is another practice that requires high inputs of human labor. Štitar dairy and pig farmers substitute the use of expensive energy by

applying labor and careful management of animal care practices, as described in the chapter's introductory story. The real advantage of Štitar animal production methods is that relying on the family as a labor resource keeps the scale smaller, which in effect keeps non-renewable resource use and environmental pollution at lower levels (MPŠiVG 2005). This advantage however, is not promoted enough by the Ministry, which continues to push its Program of Capital Investments and encourages farmers to increase their herd size.

Furthermore, as illustrated in the chapter's opening story, intensification of production by means of increasing human labor does not exclude an increase in capital, or the development of new skills and expertise (Barlett 1976). As Ivica and Antun have shown, it is quite to the contrary, as farmers continue to invest in modernizing their stables, purchasing new equipment, adopting new technology, and continuously developing new knowledge and skills. Rather than mechanizing feeding and caring for the animals in a way that would further increase capital investment and decrease labor hours, most Štitar farmers continue to rely on their labor. They also carefully manage and control their production expenses in other ways, like purchasing some mixed feed in addition to what they produce on the farm, and buying mastitis treatments in agricultural supply stores and applying it themselves. All these inputs are less expensive than making major capital investments, and more importantly, they can bring a farmer to meet his production goals and the Ministry's expectations, as the example of Mirko Gašparović from the chapter's introductory story shows. By implementing energy-conserving practices in animal husbandry, farmers like Ivica and Antun fit the model of partially

intensive and sustainable cultivators who are willing to change and modernize, and yet remain relatively small.

With the decisions they make, Štitar farmers demonstrate that their production goals are not tied to profit-maximization if it means major capital investments, but rather to produce subsistence with some surpluses for sale. Maximization in milk and meat production is an ideal promoted by the government and the milk and meat industries. It is accepted by some farmers, but most will only expand when their finances allow without the aid of debt. Maximization is not as important to the Štitar farmers who have always engaged in other non-farm related activities. Currently, as it is becoming increasingly difficult for small farmers to sell their wheat or animals, more young farmers are looking for employment in Županja, or they are forced to change their production goals. However, this becomes a problem for the Croatian policy administrators who claim that part-time farmers, who produce very little for the market, will not be able to compete in the global market. I, on the other hand, argue that with their subsistence base and partial market involvement, Štitar farmers are better insulated from the risks of unstable markets. They will adapt to the new circumstances by finding other ways of earning income and turning to productions that will continue to secure their livelihoods, just like the Gašparović brothers have done with their new crops and the Dominković brothers have done with their milk production.

The following section provides more details about the current state of the Croatian milk production, dairy farmers' frustrations, and the government's expectations.

The politics of milk production

The Croatian government and the Ministry of Agriculture characterize the present state of Croatian milk production as challenged since the average farm has only three cows and produces around 2,600 liters per cow per year (MPŠiVG 2006:14). Furthermore, the Ministry claims that the price of 2.54 HRK/liter that is paid by the milk factories is higher than in the EU. The Ministry emphasizes that this higher price does not reflect better milk quality but is tied to the poor social situation of milk producers and a deficit in the milk supply (Ministarstvo poljoprivrede i šumarstva 2003:63). The government sees these serious disadvantages in the livestock and dairy sector as limiting to the ability of family farmers to be competitive and viable in the EU markets.⁶² In explaining the poor situation in the dairy sector, the Ministry blames the farmers who do not accept modern dairy science practices and hesitate to apply for available loans, for the challenges present in the dairy sector.

Unfortunately, the Ministry and the government do not recognize that the reasons for the farmers' unwillingness to change their dairy practices may be tied to problems beyond the farmers' control. As previously discussed, Ivica and Antun addressed some of these problems. Other farmers do not even try to implement new practices because they do not see many of their fellow farmers succeeding. For instance, Jakob Dominković told me that he was not opposed to investing more in milk production if he could only see others who had invested more and were rewarded for their efforts. Jakob watched his cousin Stanko experiment with new knowledge, technology, and equipment, but failed to continuously produce better quality milk. As a result of his cousin's failures, Jakob did

⁶²What the Ministry and the EU expect farmers to become is discussed in chapter eight.

not see it as worthwhile to invest more money and labor. Because of such examples, Jakob and the rest of the dairy farmers with whom I spoke believe that the central milk lab was manipulating milk samples. Are such doubts justified, or is this just another example of the farmers' lack of trust in the government and its institutions?

The Central Milk Lab is the only such lab in the country. It was founded by the government and the Ministry of Agriculture. The lab claims to work under the control of the EU milk lab, but this did not convince the farmers of the lab's ethical practices. The lab also claims that it is protecting the interests of the farmers, while also representing the interests of the milk industry. Farmers, however, do not feel that their interests are fairly represented. For example, the lab provides a telephone help line, but rarely do farmers reach anybody on that line. A few Štitar farmers told me that they have been able to speak with someone in the Ministry, but that person did not have answers as to why the milk quality was poor, other than blaming it on the farmers' poor practices. The most assistance came from the suggestions of dairy specialists from the Croatian Cattle Service Center, but even those did not seem to result in continuously producing the top grade milk.

The number of unexplained situations and irregularities cast doubt about whose interests the lab truly protects. The most convincing case was a letter written by a Štitar milk producer, Ivan Martinović. In his letter addressed to the milk lab managers, Ivan quite frankly describes his frustrations with the lab and the milk industry. To everyone's surprise, Ivan received a written answer signed by no less than the manager's assistant. The answer, of course, disclaimed Ivan's accusations and emphasized a few points he needed to change in his milk production. What was more interesting were the events that

followed. Without any change in his animal care practices or feeding regime, Ivan produced first grade milk in the following month and second grade the next month. After that, his milk went back to its regular third grade. Could this have been a coincidence?

Unfortunately, in a country that is fighting corruption on its way to EU membership, it cannot be said with certainty that the farmers' doubts were unreasonable. Although farmers are known not to trust the government and as Netting states "happy peasants never talk as if they are" (1993:334, Prologue), there appears to be sufficient grounds not to dismiss their doubts. The lack of transparency in the milk lab practices and the rest of the governmental services do not help in convincing the farmers that it is their fault for not being able to produce top grade milk.

A milk lab that lacks trustworthiness is only one of the many problems in the Croatian dairy sector. Agricultural policies are another challenge. Usually, policies are designed not to meet the needs of family farmers, but rather those of the large, industrial food producers. For instance, the Ministry sees mastitis as a serious concern in dairy production, because it reduces milk quantity and quality, it could significantly decrease milk income, and it can be fatal to the cows. However, losses related to mastitis affect the income of large dairy farmers whose only production is milk differently than the income of diversified smallholders. For a smallholder, "large livestock are a self-reproducing, mobile store of wealth 'on hoof', and the expected value of Swiss dairy cows for milk and calf production is only realized if they are kept for eight years or more" (Netting 1993:85). Similarly to the Swiss farmers, Štitar farmers keep their cows not only for milk production, but also to produce calves that are either kept as replacement producers or they are sold for cash. If a cow gave less milk because she lost a quarter or

even a half of her udder to mastitis, she still had other values for the Štitar dairy farmers. Therefore, the production models that apply to the profit-oriented economy usually do not apply to the smallholders' household economy.

Another aspect of the agricultural policy that is a top priority for the policy makers, but a low priority for Štitar dairy farmers is milking hygiene. Dairy specialists do not believe they can repeat enough times that dirty hands, clothes, equipment, stables, and so on, result in poor milk quality. From their descriptions of how the milking parlors and dairy farms need to be built and maintained, it sounds as if they are talking about a pharmacy with white walls and tiled floors that are run by pharmacists who wear white coats and rubber gloves. Štitar farmers get a good laugh when they imagine themselves as such. To make the matters even more distant from the farmers' reality, the government, the industry, and the Ministry advertise building modern stables as a solution to most of the problems. However, as presented in the chapter's introductory story, a modern stable is not necessarily a key to producing top grade milk.

More important than a new stable is the maintenance of a precise ratio of green feed to grain for the cows. Dairy specialists often write about this, but there is no one available to educate farmers and consult with them about the feeding regimes. Even more important is good genetic material, about which the Croatian authorities rarely speak. They do not talk about the fact that neither traditional Simmentals nor Holsteins are high volume or high quality milk producing cows. They spend a great deal of time promoting changes that farmers need to implement, but they remain quiet about changes that the government needs to finance in order to help small-scale dairy farmers be competitive. Not only do policy administrators often tell farmers that they are traditional

and economically irrational, but they also admonish them for having farms that are too small to be viable.

How small is too small to be viable?

When comparing the labor efficiency of smallholders and extensive farming systems, Netting provides empirical data to support his claim that production per unit of land declines for some crops on large, mechanized farms despite the production per hour possibly increasing (1993:135, 138). He observes a reverse relationship between income per hectare and farm size. As he shows in table 5.1, income per unit of land decreases with the increasing size of a farm (Netting 1993:148). He rejects the traditional claims that certain farms are too small to generate efficient productions. Rather than using economies of scale to illustrate economic efficiency, he suggests looking for "an optimum farm size that minimizes the average cost of production for a given technology" (1993:149). This optimum farm size varies with different crops; technologies; and the prices of land, labor, and capital.

In my own study, I found that Štitar farmers continue to be able to successfully maintain their managerial role because they cultivate a landholding size that is adjusted to the available family labor and other income sources available to the farming family. As revealed in Table 7.5, almost half of the households own only a homestead⁶³ and only 1.8 percent of the households own more than 20 hectares of land. Slightly more than half of the households own between 0.01 and 20 hectares of land. This land size distribution in

⁶³A homestead is actually not included in the size of the landholding. Thus, in reality, no one owns 0 hectares of land.

Štitar has a similar pattern to what Gotch found among Pakistani farmers (1972:333, see also in Netting 1993:219) (see Figure 7.5).

Table 7.5 – Size of landholdings for households in Štitar

Landholding size ha	0	0.01-3	3.01-5	5.01-8	8.01-10	10.01-15	15.01-20	>20
Number of households	231	124	44	52	15	20	13	9
Percent of households	45.5	24.4	8.7	10.2	2.9	3.9	2.6	1.8

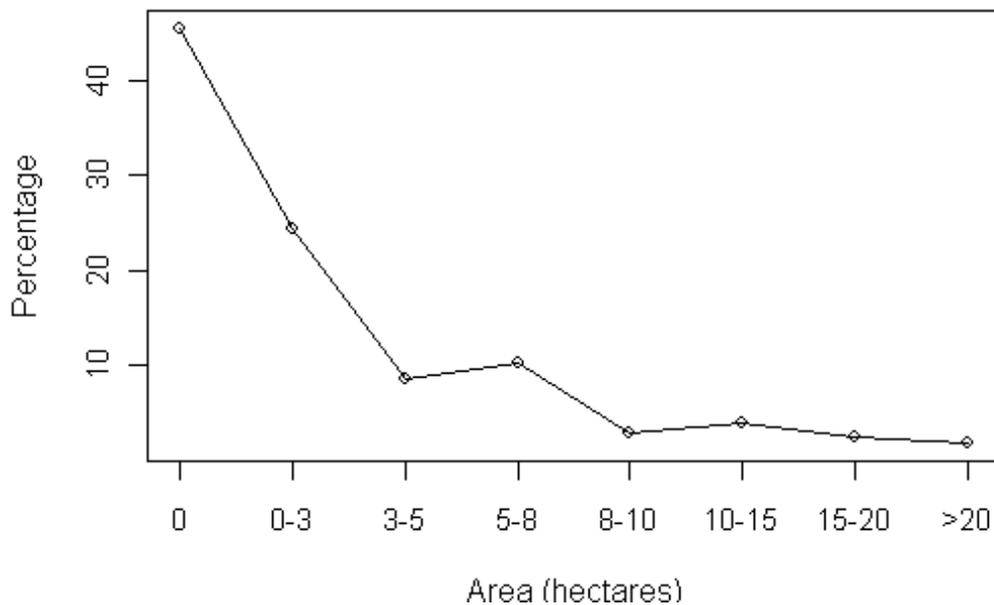


Figure 7.5 – Land distribution by landholding size in Štitar

Gotch investigated the occurrence of inequality among farmers. Comparing Pakistani and Bangladesh farmers, Gotch found that Bangladesh farmers show a typical smallholder unimodal, bell-shaped curve of land distribution. Netting states that

relatively intense population pressure coinciding with a high degree of agricultural intensification and small landholdings, as in Bangladesh, results in a system that paradoxically restrains the growth of inequality and resists tendencies toward increased rural polarization (Netting 1993:218).

The Štitar land ownership curve loses its bell-shape, like the Pakistani curve in Gotch's example. In Pakistan, the introduction of irrigation technology contributed to further differentiation between the Pakistani large and small farmers, as the large farms were able to monopolize the resources. However, in Štitar, the monopolization of resources did not happen, as the majority of the farms are too small to gain any such advantage. Currently, only nine farms cultivate more than 20 hectares of land, and combined, they own a small portion of the total land in the Štitar *atar*. Therefore, in Štitar, land concentration by the rich and the loss of land by the poor is present, but the differences are not huge. I found out that even the households with the smallest landholdings continue to grow some maize or wheat and to feed some animals for their own household consumption. So, are there farms in Štitar that are too small to survive? If so, how small is too small?

In his study of the Yugoslavian farmers before WWII, Bičanić (1981:37) asserted that "the average lower limit of landholdings, below which marketing is on a small-scale only is 5 hectares." He provided a figure of 12 million for the agricultural population of Yugoslavia, of which 5 million, or 42 percent, owned less than 5 hectares of land (Bičanić 1981:37). In comparison, the village census I conducted in Štitar in 2003 showed that 79 percent of the Štitar households owned up to 5 hectares. Are these households going to be competitive in the European market?

Croatian policy administrators claim that farms with less than 20 hectares of land under small grain and maize production are too small to be competitive in the current market (Gordan Turek, personal communication, February 19, 2005). In the case of Štitar, that means that all but the nine largest Štitar farms are not competitive. It also

means that the average 11.9 hectares cultivated by high market-oriented households in Štitar are too small to employ an entire farming family for 8 hours a day, year round (for an average family and field size see Table 7.6, page 382). Contrary to such claims, I suggest that there are small landholdings that are not too small for farmers who engage in other income-making activities.

Table 7.7 shows at what landholding size a farmer starts to make the most of his income from farming. The table suggests that 8 hectares is sufficient for a family to produce household subsistence and surpluses, when its income is supplemented by some non-farming revenue, whether that be from a seasonal job, pension, and/or some type of government payment. Interestingly enough, even the households with smaller landholdings have persisted and continue to exist, indicating that even these smaller landholding are viable in Netting's terms. The households that make income in non-agricultural activities can survive on less land than the households that live off farming alone.

Table 7.7 – Landholding size and income source of the Štitar households

Ha of land	Agricultural income	Non-agricultural income
0.0	0.0	17,914.5
0.01-3	1,410.0	35,040.0
3.01-5	12,700.0	29,200.0
5.01-8	21,240.0	16,525.0
8.01-10	52,477.5	9,300.0
10.01-15	75,785.5	7,950.0
15.01-20	109,392.0	28,800.0
>20	146,575.0	7,200.0

A further understanding of the variability in the optimal landholding size is offered in Table 7.8. It relies on the assumption that the optimal landholding size is the one cultivated by the largest percentage of the households of a certain type. Therefore, 49

percent of the low market households cultivate up to 3 hectares of land. Medium market households cultivate the majority of the landholdings from 5.01 to 8 hectares and from 10.01 to 15 hectares. These findings suggest that even a landholding as small as 5 hectares can provide a decent additional income for a part-time farming household. Conversely, high market households cultivate the majority of the landholdings larger than 8 hectares, suggesting that it is a sufficient amount of land to provide a farming income for a smaller family. This empirical evidence supports the ethnographic observations of farming families such as Jakob Dominković and other 2-member farming families who cultivate less than 10 hectares and are high market-oriented.

Table 7.8 – Household landholdings by household type.

Landholding size	High market	Medium market	Low market	No market
0	1	1	26	203
%	(2)	(2)	(20)	(78)
0.01-3	3	11	64	46
%	(5)	(18)	(49)	(18)
3.01-5	7	8	21	8
%	(13)	(13)	(16)	(3)
5.01-8	14	18	16	4
%	(25)	(29)	(12)	(2)
8.01-10	6	6	3	0
%	(11)	(10)	(2)	(0)
10.01-15	8	12	0	0
%	(15)	(19)	(0)	(0)
15.01-20	7	6	0	0
%	(13)	(10)	(0)	(0)
>20	9	0	0	0
%	(16)	(0)	(0)	(0)

Note: The percentages for each landholding size group are for a given market involvement category.

Regardless of agricultural policies whose goals have always been to increase landholding size, this data suggest that households with less than 5 hectares of cultivable land have persisted and are viable in terms of cultural ecology. Certainly, some farms are

too small to use their capital inputs efficiently, but Netting warns against generalizations made without a detailed empirical study that takes into account other income sources. Following is an assessment of other income sources for the Štitar households, such as employment, and governmental subsidies and pension payments.

Figure 7.6 shows that some trends in the amount of government payments⁶⁴ exist among household types. Specifically, the amount of government payments seems to be increasing with market involvement, although differences between household types are not significant, which is indicated by the overlapping confidence intervals.

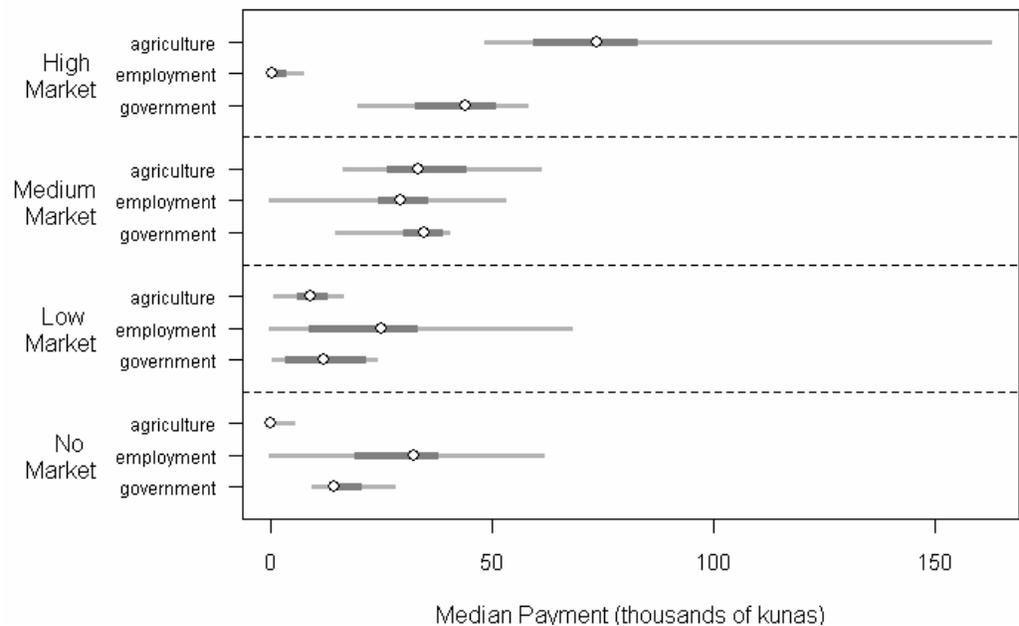


Figure 7.6 – Population point estimates for median payments in three payment categories by household types in Štitar, 2004 (50 and 95 percent confidence intervals are shown)

⁶⁴Government payments include agricultural pension; agricultural subsidies and other types of agricultural support; military benefits; child support; social welfare and other types of social payments.

Table 7.9 – Median, minimum, and maximum amounts of payments in three payment categories by household type in Štitar, 2004

	Agriculture			Employment			Government		
	Min	Med	Max	Min	Med	Max	Min	Med	Max
High market	46,591	73,727	251,343	0	500	24,000	16,894	44,163	117,836
Medium market	5,338	33,262	80,298	0	29,230	99,700	0	34,845	71,316
Low market	0	9,150	69,167	0	25,100	99,000	0	12,078	70,080
No market	0	0	32,265	0	32,490	96,000	0	14,400	71,480

Note: The medians in this figure and table are calculated using a linear interpolation of the empirical cumulative distribution function using the two values nearest and on either side of the median. This is quantile type four (of 9) in R and is different from the usual definition in elementary textbooks (given by quantile type seven).

It is noted that high and medium market households have the largest median government payments of 44,163 and 34,845 respectively. This occurs for a few reasons. One is that they receive the highest amount of production subsidies. The next largest sources of income are child support, agricultural pensions, and government welfare for the elderly confined to beds. Also, it must be noted that households with a larger number of members have a larger variety of government benefits and subsidies available to them. Since household size increases with landholding size (see Table 6.3, page 188), it is to be expected that high and medium market households would receive the largest amounts of government payments. My data reveals that government payments contribute 37.5 percent to the household income of high market households, 36 percent to medium market households, 26 percent to low market households, and 31 percent to no-market households.

Furthermore, it is noted that employment incomes are increasing in the opposite direction to the household's market involvement, with agricultural households having the lowest median amount of employment income. Income from employment contributes

less than 1 percent to the total household income of high market households, 30 percent to medium market households, 54 percent to low market households, and 69 percent to no-market households. Lastly, agricultural income amounts are showing the opposite trend from the employment incomes, with the highest median amount for agricultural households and the lowest for no market households.

It is a striking fact that government payments contribute between 30 and 40 percent of household income for agricultural households. Thus, government payments appear to be an important part of the sustainability of Štitar farmers and inhabitants. Netting did not find this kind of sustainability among the smallholders in Asia and Africa, as most of governments of those countries cannot afford to provide this kind of support for their farmers. As the following chapter will illustrate in more depth, this "new age sustainability" that makes farmers dependent on the government payments is a direction of the CAP. It can only occur in wealthy countries and it is not a model which could be applied all over the world. With such high government support, even smaller Štitar farms continue to carve their existence.

Rather than defining a particular farm size as "too small to be efficient," Netting (1993:151) provides examples of intensive smallholders who increase output per unit of land while conserving natural resources. Although Štitar smallholders cultivate larger fields, the agricultural practices they employ and the decisions they make keep them more sustainable by Netting's terms and less damaging to the environment than the farmers in extensive agricultural systems. Only in sugar beet production do Štitar family farmers begin to resemble the extensive farmers.

Sugar beet production

Among all crop productions in Štitar, sugar beets are the cash crops most heavily fertilized and sprayed with pesticides. Hence, sugar beet production has the lowest labor productivity (see Table 7.3d, page 381). To make matters even worse for the small-scale sugar beet producers, the costs of production are rising faster than their market price. Štitar farmers are realizing that sugar beet production is not beneficial for them when done so on small areas of land, even with government subsidies. However, this has not always been the case.

Sugar beets were introduced as a cash crop after WWII. Their production was established as a cooperative relationship between the state-owned sugar refinery and the farmer-producers. Until 10 or 15 years ago, sugar beets producers were able to earn reasonable money raising them by supplementing mechanization and chemicals with human labor. Instead of spraying herbicides and pesticides, they hoed the fields several times during the growing season and they harvested the roots by hand using family labor and labor exchange parties. Hoeing and hand harvesting kept the production costs at reasonable levels. Another benefit of hand harvesting was that the roots were well cleaned of dirt and leaves, which contributed to a low percentage of residue in the beets sold to the refinery. The refinery never deducted more than 8 percent for residue from the final price (Ana Dominković, personal communication: July 15, 2004; Eva Gašparović, personal communication: November 10, 2004). With this production and sale arrangement, farmers were able to make a profit and accumulate savings.

The introduction of mechanized harvesting increased the cost of production. As more farmers were able to buy tractors and additional machinery, hoeing became less

popular and was replaced with mechanized cultivation. In addition, several years ago, the refinery introduced a more rigorous system of evaluating root quality, which subsequently lowered the average price paid for beets, while input costs continued to rise. Mechanized harvesting left more dirt and other residue in the root, and thus the refinery began deducting 15 or more percent. For instance, in 2004, the refinery deducted 29 percent, or 55,000 kilograms, from the yields of Ivan Martinović because of excessive residues, thus resulting in an income loss of 14,850 HRK (\$2,091). If he had fewer residues in his beets, Ivan would have been able to cover his beet production costs, but instead he was operating at a loss. With such poor pricing politics, Ivan and the rest of the Štitar sugar beets producers were becoming increasingly frustrated.

The combination of poor prices and increased inputs made sugar beet production on a few hectares nearly useless, especially when considering that it is not a subsistence crop. My studies show that every year some farmers ran into debt and the majority stayed somewhere near break even profit margins for their efforts. During the years of weather extremes, like 2004, even more farmers found themselves at a loss. After one such bad year, Mato Prelić said he would "not plant [beets], even in a flower pot". And he did not, as the next year he planted soybeans. Most Štitar farmers realize that growing sugar beets on only a few hectares is no longer profitable. They hear about farmers in the neighboring village who plant 10, 20, or more hectares of beets and who harvest roughly 75 tons per hectare. No one in Štitar has enough land available to commit that many hectares to sugar beet production, in addition to their subsistence base. Secondly, it is rare that Štitar farmers can reach those yield levels because of Štitar's poor soils. With the growing frustration, Štitar farmers will have to find different cash crops, as a few

have already done. Others who have access to the former national cooperatives' land are sowing 10 or more hectares of sugar beets. What are the effects of such new developments on farm sustainability as described by the theory of cultural ecology?

Rural development programs

Anthropologists who study smallholders' societies (Netting 1993, Barlett 1993, Layton 2000, Cole and Wolf 1999, Cleveland 1998) warn about the effects of rural development programs whose goals often contradict those of the smallholders. Most rural development programs introduce change in one of two dimensions: the types of crops grown or the way in which they are grown (Barlett 1980:3–4). Barlett points out that both of these agronomic behaviors extend into the entire social and political organization of rural life, as we saw happening in Štitar in the 1950s with the advent of agricultural mechanization. While some communities grow the same crops they have grown for centuries, others change their production decisions in response to the world market, national prices and market policies, and/or changing governmental infrastructures (Barlett 1980). Barlett emphasizes that these changes sometime result in ecological repercussions whose effects appear only later.

Those communities that choose to continue growing traditional crops over a new crop are often encouraged by governmental policies to increase their productivity (Barlett 1980:4). Historically, this increase has been achieved by labor intensification, but much of the current world emphasis is on capital intensification (Barlett 1980:4), as it the case with the Croatian and European agricultural policies. These agriculture development programs, as Chibnik (1980:107) points out, commonly involve increasing the cash needs

of farmers. They take out loans and they purchase more land, fertilizers, seeds, weed killers, and machinery. Larger capital investments allow farmers to re-structure their farms and produce for the market. However, closer integration of rural communities with the world economy means that the farmers must respond directly to prices and market trends that are based on relatively short-term supply-and-demand pressures (Chibnik 1980:107). Under such pressures, family farmers find it difficult to keep their market independence.

The traditional family farming systems that have historically been employed were adapted to long-term ecological and economic forces. They are now being transformed into more “developed” systems which—as Barlett warns—may not be well adapted to survive during bad years (Barlett 1980:6). It is precisely these kinds of changes in Croatian agricultural policy that comprise the subject of the next chapter.

Summary

This chapter describes the practices of the sustainable and partially intensive Štitar smallholders that are similar to those of the smallholders described by Netting. These are practices such as relying on a renewable energy sources, re-using elements produced on the farm, producing subsistence as well as surpluses for sale, and partially engaging in the market. They have made Štitar smallholders sustainable cultivators. They are sustainable in terms of energy because they are able to produce predictable and sufficient amounts of food for household consumption and to keep their production stable over the long run. These land cultivation practices keep them closely aligned with the theory of

sustainability described by cultural ecology, but not necessary by the CAP, as I discuss in chapter eight.

The Štitar farmers I studied are partially intensive because they use a system of annual rotation in which one or more successive crops in a rotation are followed by fodder. The fact that they leave their land fallow for a few months between the harvesting of one crop and the planting of the next indicates that they use land more intensively than it is used in extensive systems. Their labor of eight or more hours per day, five days a week, all year round, resembles the most intensive cultivators Netting described. At the same time, Štitar farmers are less intensive because the forces that typically cause farmers to intensify, like population pressure or politically imposed land limitations, are absent, and many farmers have been able to expand their land under production. They are also less intensive because of their lower labor productivity ratios of between 0.5 and 1.16. However, in some parts of agricultural production Štitar farmers decide to increase their labor rather than to mechanize, thus intensifying their production.

In this chapter I reject several traditional stereotypes about Croatian farmers. I demonstrate that they work as long as an average laborer. I also suggest that generalizations about small farm size viability should not be made without including the assessment of non-agricultural income sources. If employment and government payments are included, even quite small farms meet their goal to produce some subsistence as well as surpluses for sale. These small and labor intensive farms stand in contrast to the large and energy intensive farms which often practice extensive land use. Extensification may decrease labor hours per unit of land, but it also decreases the output

per unit, which is why extensive land use systems are less productive for their land sizes than small family farms.

Another traditional stigma I reject is that of the uneducated farmer who is unwilling to change. I described farmers who are entrepreneurs and who experiment with new knowledge. I suggest that the farmers' hesitation in accepting innovations may be a result of their farming goals being different from those of government policies. Many policies introduce and promote maximization as a production goal, though this may not be well suited to the smallholder's household economy. A discussion of the directions in which Štitar family farmers *do* need to change follows in chapter eight.

8

Agricultural and rural policy

Introduction

Producing healthy food by employing good farming practices that are less damaging to the environment has become a central point of concern for the CAP. On its way to the EU membership, Croatian governmental institutions need to bring the national agricultural and rural policy up to the EU standards. In line with the CAP, the Croatian policy must shift its focus away from subsidizing production of large-scale farms and toward supporting sustainable agriculture. Such a policy focus creates new roles for European farmers, who are no longer only food producers, but also stewards of their landscape and businessmen and women. Their farming is sustainable according to CAP if it is competitive, environmentally safe, and socially just. The CAP's definitions of agricultural sustainability depend on the same concepts of viability, diversification, and market orientation that Netting describes among the smallholders he studied. The difference rests in the understanding of these concepts, as I describe them in this chapter.

I first describe what is expected of European farmers and how Štitar farmers would need to transform to meet these expectations. These pertain to my research question seven. I begin by providing a summary of the newly reformed CAP and its commitment to the WTO. I continue with explaining the ways in which the EU understanding of sustainability, viability, and diversification differ from Netting's understanding, as well as

exploring how the Croatian agricultural policy is conforming to the CAP. I state that the Croatian Ministry continues to funnel the most funds to the largest farmers who are already market-oriented and are willing to expand further. I suggest that, instead, the Ministry should focus more attention on the programs that could be beneficial to small farmers and rural communities as a whole.

Next, I attempt to answer my eighth research question by giving a prediction of how Štitar family farmers might transform their behaviors once again, to adhere to the CAP model of the European farmer. Some directions of change were already present during my fieldwork. Specifically, some farmers were expanding their land and production volumes, others were accepting new crops, and yet others were downsizing. Moreover, in relation to my research question nine I provide examples of how the CAP affects farmers. For instance, I illustrate how CAP's sanitary requirements could contradict rural development measures and how its focus on farm restructuring could increase environmental risk and create conflict among generations. Lastly, in regard to my research question ten I discuss masculinization of farming and address the absence of the CAP programs specifically designed for farming women.

By answering all my research questions, I shall close the circle which I began by chronicling the history of the area; continued by describing family cycles of change, household economy, and hierarchy; and ended by presenting how Štitar farming families can change their behaviors to confront new trends that are now tied into the global rather than just national scene. I begin with the goals of the "greener" CAP.

Setting up a scene

The year of 2003 brought two major changes for the EU: the newly reformed CAP was publicly announced and eight new East European members joined the Union, with Romania and Bulgaria to follow in 2006. It was not a coincidence that these two events took place in the same year. The EU recognized that its expansion was moving the center of gravity to the New Member States (NMS). Realizing that European agriculture was facing new challenges from countries whose agriculture and rural existence needed modernization and restructuring, the CAP policy makers announced that the policy was reformed to help the NMS more nearly approximate the state of agriculture and rural way of life of the Old Member States (OMS)⁶⁵ (European Commission 2004). As I address below, some critics believe that the CAP failed to make a major reform.

Nevertheless, the excitement of the policy makers about the new CAP was high, not only because the policy would better meet the needs of the European farmers, but also because it responded to calls from two other directions. First, the European public continuously expressed concerns about the relationship between farming and the environment, desiring certain healthy food and animal standards. Hence, the new health standards, requirements for the fair treatment of animals, and measures of protecting the environment are stricter than ever before. Consequently, it became more challenging for the farmers to meet the standards of good farming practices and more expensive to produce food that meets all the regulations and high quality standards. Recognizing this

⁶⁵See Escobar (1995) on development. By being recognized as having some catching up work to do, the "poor countries [of Eastern Europe] are known, specified, and intervened upon" which Escobar describes as a scope of development programs (1995:44–45). In other words, farmers of the NMS are being "treated as abstract concepts [and] statistical figures" and are being moved up in the charts of "progress" (Escobar 1995:44).

effect of its regulations, the EU agreed to pay farmers for meeting these standards, instead of, as it did previously, paying them to produce food that the market did not want and in ways that were environmentally damaging.

The second call to which the EU responded came from the WTO. Some members of WTO, specifically the developing countries, made a request that certain countries, primarily EU and US, reduce export subsidies, domestic support, and import duties. The WTO Uruguay Round began moving in this direction and the current Doha Round, which began in 2000, aims to further liberalize agricultural trade, with further substantial reductions in tariffs, domestic support, and export subsidies as prominent issues. The Doha Round of the WTO negotiations has yet to be completed. Agreement between the participating countries has not yet been reached, largely because of the wide range of views and interests among member governments about how to further liberalize agricultural trade (WTO 2007).

As a response to this call from the WTO members, the new CAP discontinued the link between production and subsidies, also known as decoupled direct payments. By decoupling payments, the EU attempts to reduce payments per hectare for bigger farmers and make the payments available to only those farmers who comply with the strict environmental measures. This move means that a major share of EU support to agriculture is moved from a "trade-distorting" classification under the WTO rules (Amber Box)⁶⁶ toward the minimal or non-trade distorting category (Green Box). The EU also continues to reform some major food production sectors reducing or removing tariffs.⁶⁷

⁶⁶In WTO terminology, subsidies are identified by "boxes": green (permitted), blue (amber box with conditions) and amber (reduced). All domestic support measures considered as distorting production and trade fall in the Amber box, such as measures to support prices and production subsidies. The Blue box

The EU's reform of its agricultural policy and ongoing reforms of its food production sectors indicate its commitment to the Doha Agenda. The EU Commissioners believes that the growing trade among all countries must be conducted under multilateral rules for the benefit of all, and in particular the developing countries. As a Deputy Head of the Cabinet of the European Commissioner for Agriculture and Rural Development, Hans Gotwald, stated, "giving market access, especially to the least developed and developing countries, is an absolute must and the rest can be negotiated" (personal communication: January 26, 2005). In addition to its commitment to the WTO goals, the EU continues to defend its Model of European Agriculture that is sustainable, multifunctional, and evolving. It also continues to fulfill its commitments to its consumers, making sure that the food they eat is of the same high standards, whether it is home-grown or comes from a country outside the EU.

However, in reality, the EU continues to be more restrictive in trade with poor countries than it appears. The policy makers proud themselves on the "Everything But Arms" program which permits free imports of almost everything from the world's fifty poorest countries. In practice, however, strict hygiene and product requirements undo the benefits of the trade program and act "deliberately or accidentally as a trade barrier" (Beattie 2007). Critics say that "the EU remains almost twice as protective of agriculture

includes any support that would normally be in the Amber box, but the support also requires farmers to limit production. Green box subsidies do not distort trade or cause minimal distortion, such as environmental protection and rural development.

⁶⁷With the EU reforming its farming policy, the US is the only player who has not changed its stance a bit. It has not even promised to decrease its subsidies, much less has done so. Instead, it blamed other countries for not going far enough in opening their markets on both agricultural and industrial goods, saying that this was a pre-requisite for the US to retain (let alone increase) its existing offer on subsidies (WTO 2007).

as the US—a third of its farmers' incomes are from subsidies or artificially high prices in trade with poor countries" (Beattie 2007).

Apart from decoupling farm payments, another big change in the CAP after 2003 was that it integrated environmental concerns with its two core pillars: market and income policy, and sustainable development policy. Market measures include decoupled payments such as Single Farm Payment⁶⁸ and limited coupled payment.⁶⁹ The novelty is that farmers can receive these payments only if they employ good environmental (also known as cross-compliance), food safety, and animal welfare standards. Another novelty is a reduction of direct payments for bigger farms. By reducing direct payments, the CAP is not only meeting its obligations to the WTO, but more importantly, it is able to transfer these funds into the measures of the sustainable rural development for small-scale enterprises.

The EU's sustainable development policy includes measures of Rural Development⁷⁰ whose aim is to help rural areas meet standing economic, social, and environmental challenges. Rural development was launched as a result of the EU recognizing the need to modernize and restructure many areas of the NMS, not just farms. The new

⁶⁸Single Farm Payment is a one time annual payment. It allows a farmer to receive an income regardless of what he produces. There are two bases for calculating the amount of the payment. One is the historic approach, or the amount of payments received during the reference period and the number of hectares a farmer was farming during the reference period, which gave right to direct payments in the reference period. Another basis is the regional approach, or the sum of payments received by the farmers in the region concerned during the reference period. Regional reference amounts are then divided by the number of hectares declared by the farmers of the region in the year of the payment introduction.

⁶⁹The EU allows the Member States to keep limited coupled payments that are linked to production (up to 25% of the current per hectare payments). This temporary measure is meant to discourage farmers from abandoning production, which could happen if the production subsidies disappear completely.

⁷⁰Specific rural development measures include early retirement, support for less-favored areas, afforestation of farmland, agri-environment measures, renovation and development of villages, protection and conservation of rural heritage, improvement of infrastructure, and diversification of farm activities.

Commission decided to direct its effort toward boosting growth and creating jobs in rural areas (Liz Miller, personal communication: January 25, 2005). This is to be done by following these four thematic axes: to improve competitiveness of the farms, to implement measures for preserving the environment and the countryside, to improve the quality of life and encourage diversification of the rural economy, and the Leader approach.⁷¹ It must be clear that the measures from the Rural Development Program are meant to not only provide support for semi-subsistence and subsistence farms, but also for rural communities in general. They are designed to help create services that will improve the standard of living and keep people in the rural areas. Coupled with the market and income measures, Rural Development is intended to aid in creating sustainable agriculture and rural communities. How do the CAP makers envision the policy to reach these goals is presented in the next section where I discuss how CAP's vision of sustainability differs from that of Netting.

Sustainability, viability, and diversification in the policy terms

For the EU, promoting sustainable agriculture in Europe means ensuring that future generations enjoy the benefits of Europe's unique environmental heritage and natural resources. A member of the Cabinet of the European Commissioner for Agriculture and Rural Development, Liz Miller, described what the EU means by each of the three components to sustainability.

For all agriculture to be sustainable, it has to be economically viable, meaning it has to be profitable. It cannot be a sector of industry that is losing money. It also

⁷¹Leader approach is different from the rest in that it is a bottom-up approach in which the European Commission gives guidelines to the Member States to assist them in improving their rural areas, but lets the states select the particular paths they will follow to achieve this end.

has to be environmentally sustainable, so it has to maintain the environment and even improve it if possible. That is why we have rural development regulations. And then the social aspect is that we try to keep people in rural areas by creating job opportunities (Liz Miller, personal communication: January 25, 2005).

In other words, achieving sustainability means meeting an economic challenge by strengthening the viability and competitiveness of the agricultural sector. The CAP does this by severing the link between subsidies and production, which makes farmers more competitive and market-oriented while providing the necessary income stability.

Achieving sustainability also means meeting an ecological challenge by promoting good environmental practices and providing services linked to the maintenance of habitats, biodiversity, and landscape. Lastly, it means meeting a social challenge by improving the living conditions and economic opportunities for farmers and rural inhabitants.

How can European farmers meet such CAP's visions of sustainability? A farm that meets the economic aspect of sustainability is the one that is market-oriented and competitive. In other words, a farm's economic sustainability is linked to the market. If a farm does not produce for the market, it is not competitive, it is not viable, and it is not sustainable in CAP terms. What does that mean for a country like Croatia, where small farms prevail? It means that at least 76 percent of Croatia's farms that are smaller than 3 hectares (RH-DZS-PP 2003, MPŠiVG 2005:35) and that produce mostly subsistence and sell some surplus are not meeting the economic aspect of sustainability. In the CAP terms, these farms are expected to restructure or exit farming.

Since agricultural landscapes of many NMS are dominated by small semi-subsistence and subsistence farms (European Commission 2004), the reformed CAP is designed to help these farms restructure to become commercially viable. The CAP attempts to achieve this in several ways. One is by offering a program of income support

for up to five years, which is meant to help the farming family cope with cash-flow problems during the farm restructuring. Another way is to provide support for farm advisory services that offer professional advice to farmers about how to farm in an environmentally sustainable way, how to diversify their farming activities, or how to upgrade their facilities (European Commission 2004). The CAP policy makers believe that restructuring farms allows semi-subsistence farmers to become competitive and thus viable, which meets the economic aspect of sustainability.

Furthermore, a farmer can meet the social aspect of sustainability by diversifying in farm and off-farm related activities. In order to do this, the EU policy makers offer rural development measures such as training, investment aid for processing and marketing facilities, additional assistance for forestry, as well as set up start-up assistance for young farmers, and promote the conversion of agriculture. These measures also contain support for microenterprises, tourism, protection and management of natural heritage, food processing, or craft making. They are not only aimed at farmers, but also at rural communities in general, to help them improve the quality of life.

Lastly, a European farmer can reach the environmental aspect of sustainability by implementing good farming practices, or farming that includes at least compliance with the Community and the national environmental legislation, such as use of plant protection products or nitrates directive. In other words, a farmer has to meet minimum environmental standards to be eligible for any support from the EU. Farm managers can even go beyond a good farming practice by including integrated farming systems and organic farming; or preservation of landscape and historical features, like hedgerows and forests. However, since a farmer who decides to take this approach incurs a cost or even

a loss of income, the society must pay for the environmental services provided by farmers. Thus, the request of consumers for farmers to protect the environment and produce good quality and safe food make food production in Europe more expensive than elsewhere. These costs often cannot all be recovered from the market, so the EU rewards farmers for such services (Mariann Fisher Boel's blog entry: February 6, 2007). This is quite a shift in the EU farming policy from rewarding farmers for productions that were damaging the environment and endangering biodiversity to rewarding practices that preserve biodiversity and enhance environment.

European sustainable farmers described above are different from the sustainable smallholders Netting described. First of all, in tying sustainability to market involvement the CAP diverges from Netting, who described sustainable small farms that are only partially market-oriented and yet are viable. The policy makers say that being free to produce what the market wants allows farmers to be their own bosses.

It does not mean that he [a European farmer] has to depend on the market. It means that he no more depends on the guaranteed prices. We have cut the link between product, type of product, and income. He has a guaranteed income—his single farm payment or limited direct payment—and he produces what he chooses (Liz Miller, personal communication: January 25, 2005).

However, I argue that the connection of sustainability to market participation does not allow for partial market orientation of the smallholders Netting describes. Indeed, market-oriented producers are subject to market fluctuations and are not their own bosses. Tying farm sustainability to the market is not sustainable. First, substituting subsistence base production with cash crops actually increases farmers' risk, because without the basic subsistence production a farmer does not have a security fall-back in case of a crop or market failure. Market-oriented policy may secure short-term profit for

a farmer, but it also jeopardizes long-term viability for a farming family. Secondly, restructuring farms often involves a need for capital investments that exceed the financial ability of the farmers. By asking them to restructure their farms, the policy actually pushes farmers into debt. Whether a farmer will be able to pay off that debt or not is completely dependent on the circumstances over which he does not have much control, such as market and weather. Inability to pay off a loan may result in a farmer losing his farm, or carrying the debt over to the next generation. That certainly is not a sustainable development.

With the core of some policy aspects dismantled, I suggest that the CAP should break the link between market orientation and viability and it should recognize semi-subsistence and partially market-oriented farms as such. They have an important role to play in CAP goals. The EU policy makers should acknowledge the importance of a subsistence base in securing farm household viability and should not push these farms to become fully integrated into the market. Instead, the policy administrators of the individual member countries should focus their attention at creating opportunities even for the smaller farmers to sell their surpluses, as I discuss below. They also need to design programs that will award small farmers for their role in preserving traditional European rural landscape and having a minimum negative impact on the environment. The CAP measures address these opportunities. However, since it is left to each individual member country to recognize what opportunities exist for their small farmers, Croatian policy administrators certainly do not seem to direct enough attention to the needs of the majority of their farmers. In the following sections I provide answers to the

second part of my research question seven, focusing on how family farms in Štitar compare to the EU visions of sustainability.

Croatian agricultural policy

In October 2005, Croatia began negotiations for EU membership, which are predicted to be executed by 2009. Aligning the national agricultural policy with the CAP is the job of the Ministry of Agriculture, Forestry, and Water Management. The Ministry began to reform agricultural policy in 1999, when it recognized family farms as pivot points of the agricultural policy. In 2003, the Ministry conducted an Agricultural Census which revealed that family farm households hold 80 percent of Croatian agricultural land, animals, and other agricultural resources (MPŠiVG 2002:6). The Agricultural Census served as a base for creating a Farm Register of land and animal ownerships, yields, amounts of subsidies received, and so on. This database, which is one of the many requirements Croatia must fulfill in order to become a part of the EU, is meant to serve as one of the elements that will help Croatian policy administrators know what a farmer produces and what support he or she is eligible to receive. Without a Farm Register a member country cannot receive any EU support.

The Agricultural Census also revealed the true state of Croatian agriculture, which, according to the Croatian policy administrators, faces many disadvantages. The following sections identify the main disadvantages as addressed by the policy administrators—such as small farm size and lack of education among farmers—and explain how the Ministry attempts to overcome them. Apart from the problems addressed by the

Croatian policy administrators, I define issues that are present at the higher level of authority, specifically the governmental and the ministerial levels.

Small farm size

As much as 76 percent of the Croatian farms are smaller than 3 hectares and less than 5 percent of farms are larger than 10 hectares (RH-DZS-PP 2003, MPŠiVG 2005:35). In addition, the average size of the Croatian agricultural holding is only 1.9 hectares,⁷² which is small when compared to the average agricultural holding size of the EU-15 at 17.7 hectares and the EU-25 at 13.5 hectares (MPŠiVG 2005:86). Furthermore, while one EU agricultural holding raises 12 cattle and 18 pigs on average, one Croatian agricultural holding raises only 3 cows and 4 pigs (Gospodarski list January 15, 2004:13). Policy administrators see such structure of the Croatian family farms as limiting their competitiveness. As they state, "the majority of very small agricultural holdings (are) unable to generate a profit sufficient for a decent living standard.... Not many of them are sustainable and market-oriented, and therefore not competitive" (MPŠiVG 2005:30). In order to overcome these limitations, Croatian policy administrators designed two sets of measures that are expected to increase landholding size and farms' competitiveness.

One set includes measures that will result in land consolidation (Martin Ivanovac, personal communication: January 19, 2005). These include: completing land ownership reform, privatizing state-owned agricultural land, and developing a land market. The government even enacted a law that prohibits dividing farmland among many heirs, which will quickly change traditional rules of land inheritance, as I found them in Štitar.

⁷²The average size of the Croatian farm has been a subject of controversy. The size of 1.9 hectares is one of the three different numbers that are in circulation, and it varies from what I was told by the Ministry officials in 2004, as presented later in the chapter.

Another measure that is expected to result in land consolidation over a long period of time is income support provision to elderly and other semi-subsistence and subsistence farmers, who are then expected to move away from farming and sell or lease their land to the larger and "more serious" farmers.

Since these measures take a long time to bring desired outcomes, the Ministry also decided to promote structural changes among farmers. The Ministry encourages small family farmers to refocus their production from small grains and maize to fruits and vegetables which are thought to assure higher profit per unit area (Gordan Turek, personal communication: January 19, 2005). To those farmers who desire to modernize their farm holdings and their production, the Ministry offers several funding solutions, one of which is a loan Program of Capital Investments. Those farmers who do not wish to expand are encouraged to exit farming completely and look for other sources of income.

Such directions of transformation clearly indicate that the Ministry's goal is to either completely re-orient family farmers toward market production or push them out of farming so that their land becomes available to the "more serious" farmers. Some Ministry officials admit that one part of small family farms will disappear, and they predict that to happen with the smallest farms that are run by elderly farmers. However, I argue that such a goal to push some farms out of business only so that other farms can expand is contrary to the EU goals of preservation of rural landscape. Making some farms disappear contradicts the efforts for rural development.

In addition to having restructuring funds available from the Program of Capital Investments, Croatian farmers are able to apply and receive irreversible funds from

SAPARD (Special Accession Programme (sic) for Agriculture and Rural Development).⁷³ This program is meant to provide financial assistance to any interested farmers, regardless of the market orientation, who desire to restructure their farms and either divert efforts to a more profitable production, or to expand an existing milk or meat production. Although, in theory, SAPARD sounds like it could bring a number of benefits for small and large producers, in reality it has a number of problems. First and foremost, the criteria for eligibility are complex and the paperwork required abundant. One criterion most Štitar family farmers do not meet, and most likely will not meet before the program termination, is for their farm to be registered in the value-added tax (VAT) system. By the end of my fieldwork, only one or two Štitar farmers had registered their farms and to the present day not many more did so (Antun Dominković, phone communication: February 19, 2007). The Ministry made a few attempts to speed up voluntarily registration of farms in the VAT, but they have not resulted in desired outcomes. In 2007, the Government once again postponed mandatory registration. Such resistance to the VAT allows farmers more time to be free from paying income taxes, but it erases their chance to receive free EU farm restructuring funds.

The complex eligibility criteria are not the only limitation of the SAPARD for farmers. It also is poor in informing farmers about the program and its possibilities. Farmers do not have enough information about the SAPARD and they do not have appropriate guidance available that would help them collect all the paperwork they need.

⁷³SAPARD is aimed at supporting the efforts being made by the Central and Eastern European countries in the pre-accession period as they prepare for their participation in the CAP and the single market. Croatia picked the following four measures in which to allocate its SAPARD funds: investment in agricultural holdings, improving the processing and marketing of agricultural and fisheries products, improvement of rural infrastructure, and technical assistance.

Therefore, it is safe to say that not many Štitar farmers will benefit from SAPARD before the program is closed in 2009.

Apart from the SAPARD funds and capital investments, the majority of Croatian farmers continue to receive production subsidies as long as they meet the required minimums. Since this is not in line with the WTO, Croatia is in the process of adjusting its farming policy. The Ministry is getting away from paying subsidies for certain crops and toward tying them to the area of land or the number of animals in production. The Ministry is also gradually reducing total subsidy payments by increasing required minimums, which reduces the number of farmers receiving the subsidy. Such efforts are expected to result in distancing the Croatian agricultural policy from allocating funds to measures that are trade distorting and toward income support measures which fall into the Green box (for an explanation of the Green box see footnote 66). Indeed, in 2005, the Ministry increased income support amounts and expanded eligibility criteria so that more farmers can receive this type of support. However, as I elaborate later in the chapter, the most funds continue to be paid to the large farmers and very little is directed toward Rural Development measures.

Lack of education

Another disadvantage of the Croatian agriculture as addressed by the policy administrators is related to the lack of education among family farmers. Policy administrators state that farmers' refusal to accept innovations and modern knowledge is tied to the fact that most of them have only an elementary and high school education. Thus, the Ministry is taking certain steps to improve farmers' education. First, it established the Directorate for Rural Development, which began to operate in April 2004.

As stated by the Ministry Assistant, Gordan Turek, the Directorate has three main goals: to keep the current rural inhabitants living in the rural areas, to assure living standards in rural areas similar to those in urban areas, and to attract some urban inhabitants back to the rural areas to engage in non-agricultural activities, such as repair work, teaching, or care taking (personal communication: January 19, 2005). As noted, Rural Development measures are intended to help rural inhabitants in general, not just farmers, to develop activities other than agriculture as long as these do not harm the traditional appearance of the areas.

One of the rural development measures is aimed at providing educational opportunities for farmers who wish to redirect toward non-farming income producing activities. For instance, farmers can get informed by attending educational camps.⁷⁴ In addition to educational camps, other ways of educating farmers include broadcasts on the national and many local TV and radio stations about agricultural technology, as well as posting brochures that can be found on the Ministry's web page. Farmers also have a number of agricultural magazines available, such as *Gospodarski List*, *Agroglas*, *Nova Zemlja*, and *Zadrugar*, as well as gardening additions that are published once a week in all major daily newspapers (Gordan Turek, personal communication: January 19, 2005).

⁷⁴One such educational program was scheduled to commence in 2005. It was called Program Ten Times Ten and it contained ten main measures and ten sub-measures for rural development. The program was to be implemented through organizing several daylong education camps for farmers. Interested farmers would apply and be selected by the Directorate. The camps were to be located on farms across the country that, in addition to farming, participated in other activities, such as rural tourism, crafts, and food processing. For instance, a camp teaching milk production would be located on a farm where interested farmers would be able to see and learn about recommended practices in dairy farming and milk production, as well as cheese making. The goal of these educational camps was to offer theoretical and practical education to interested farmers, who would be introduced not only to new farming technologies, but also to ways of diversifying farm activities. A participant would learn not only about modern production practices, but also about how to implement other income-making activities on his farm (Gordan Turek, personal communication: January 19, 2005).

Apart from the Ministry, there are other governmental institutions that offer education to the farmers. For instance, the Croatian Livestock Center, in addition to registering animals for support programs, offers animal care advice. The Croatian Advisory Service is another institution that is meant to advise farmers. Its experts regularly post agricultural advice on their web page. However, this information available on the Internet is of a little use to the majority of the farmers whose homes and operations are not yet computerized. The farmers would benefit more from establishing phone communication channels with these two institutions, but unfortunately, as with the people at the milk lab, their experts are hard to reach. Granted, both these institutions suffer from lack of funding and a shortage of personnel, with the result that too few experts visit farmers' fields and hold educational presentations. This shortage, however, does not excuse them for not making themselves more available by phone and it does not give them a right to call the farmers "uneducated and stubborn." A comment made by one of the policy administrators I interviewed, stating that "our farmers are simply lost and unable to find their bearings in the current situation" (Martin Ivanovac, personal communication: January 19, 2005) indicate the general opinion of the experts and politicians about the family farmers. What these people in high positions do not recognize is that they bear the responsibility of educating and informing the farmers, and providing them guidance through the transformation. By criticizing the farmers, the policy administrators and experts fail to recognize their own faults. The following section describes the lack of understanding among the Croatian policy administrators I interviewed.

What did Croatian policy administrators not know?

Had the policy administrators and farming experts interacted more with farmers and had they made themselves more available, they would have realized that farmers were, in fact, interested in learning. During my interactions with Štitar farmers, I found that they read farming magazines, regularly watched the farming broadcasts, and called the advisory service, the milk lab, the cattle center, and the Ministry with specific questions.

Given the farmers' stories about frustration for not reaching anyone on the other line, and given my own experience of the difficulties of reaching policy administrators, there appears to be room for improvement for both parties. It would be helpful if experts would change their opinion about farmers and if the national institutions that deal with agricultural issues would become more responsive and more transparent in their actions and decisions. The farmers in turn, should listen better and understand the benefits of what is suggested to them. They should try new methods and learn for themselves, which many of them were doing. Croatian agriculture will restructure quicker and with more success if all actors—farmers, policy administrator, and agricultural experts—improve their communication and engage more actively with one another.

There is another interesting realization I reached after conducting interviews with Croatian and the CAP policy administrators. It was clear that the lack of knowledge and information was not only the problem of the Croatian farmers, but also of the national policy administrators. Their top-down mindset prevented them from understanding the real potential and advantages that the Croatian agriculture and family farmers offer. They did not, and many of them still do not, realize that Croatian family farmers are no different than the rest of the European farmers who are employing strategies of

adaptation to the new circumstances. As the European Commissioner, Franz Fischler, emphasized, European farmers have been employing traditional skills and knowledge in food production and combining it with modern science and technology (European Commission 2004:4–5). He stated that the next step for the farmers is to add land management and environmental expertise to their farming practice that is in line with the CAP. Certainly, Croatian farmers are not any less able to move in this direction, and what needs to happen is that their policy administrators recognize this and give them credit for it.

An example of an area in which Croatian policy administrators needed more knowledge at the time of my interviews is the area of health and animal care standards. One of the questions most often asked in rural Croatia was: what would happen with its traditional pig slaughtering practice? Would it be banned? A Ministry official, Gordan Turek, said that the pig slaughtering would not be banned but would be performed differently.

A farmer will no longer be able to take a knife, slaughter the pig, and let the blood run down his farmyard. Instead, he will have to bring the pig to the slaughterhouse, where it will be slaughtered in the health-related acceptable way. The slaughterhouse will record the slaughter event, which is necessary to keep a register of the national animal fund. The slaughtered pig will then be erased from the Farm Register of live animals. The slaughterhouse will also run all the animal health tests, and if everything turns out ok, it will hand the pig in halves to its owner. The owner himself will then be able to cut the pig and process it in his preferred way. I don't believe this will be a problem, since more and more people already use slaughterhouse services, as they are having a hard time finding enough help among their neighbors and family to perform all necessary slaughtering and processing tasks (Gordan Turek, personal communication: February 19, 2005).

Had the changes happened this way, surely, many Štitar inhabitants would have been furious. I could not imagine anyone paying a service to a slaughterhouse to slaughter 5 or 10 pigs. Fortunately, between the time of my interviews and the writing of this draft,

the Ministry officials found a solution that both preserves the traditional practice and meets veterinary and fair animal treatment standards. The new regulations allow pig slaughtering in farmer's yard for his own household consumption. Those farmers who intend to sell a slaughtered animal must take the live animal to one of the certified slaughterhouses. All farmers, slaughtering for their own consumption or intending to sell, must follow the EU slaughtering standards that require them to minimize animal's pain and suffering. This includes administering sedatives before slaughtering animals. Also, all farmers must take the meat sample from every animal to a vet for disease inspections. Meat inspection has already been administered in Croatia, while the rest of these regulations are yet to be put in place.

During my fieldwork, a few individuals in Štitar were slaughtering professionally and were not registered as slaughterhouses. Eventually, these individuals will have to register their business or stop performing slaughtering as a service. However, for the time being, they continue to make good profit under the table and do not have any reason to register their businesses. Essentially, providing slaughtering service has always been one of the ways to diversify household income. The novelties are that the new regime requires this to be executed in compliance with a set of regulations and it requires the actor to pay an income tax.

Although I addressed a few areas in which Croatian policy administrators needed to improve, I must note that there was some indication that they were gaining a deeper understanding of the CAP through the process of EU membership negotiations (Anita Tkalčević, personal communication: January 19, 2005). Therefore, equipped with the better knowledge, the policy administrators will be able to better inform the farmers.

Now that we learned exactly what Croatian farmers are expected to become, it is time to investigate one peculiar issue. Many Štitar farmers who cultivate a few hectares of land, sell some animals, and work off-farm think of themselves as farmers. However, policy administrators I interviewed revealed that they do not think all the Croatian farmers are actually farmers. They think that some farmers are too small to be viable, and because they do not sell enough in the market they are not farmers. The following section continues to explore issues related to my research question seven by discussing who is a farmer in terms of the national policy.

Who is a farmer in Croatia?

According to the Ministry, a farmer is not a person who grows subsistence and sells very little or none or who farms part-time. A farmer is a person who is fully committed to farming and who produces for the market. Gordan Turek asserted that part-time farmers

are aware that without their employment salary they would not be able to live off what they produce on their 3, 5, or 10 hectares. Particularly in Slavonia, 10 hectares of wheat or maize supplies enough food for a household to feed its own pigs and chickens, which meets only a part of the household's consumption needs. Such a farmer will not be registered as a farming producer because he only produces to meet his own consumption needs (personal communication: January 19, 2005).

Thus, it is these farmers who either must restructure their farms, expand their volumes, accept new crop, educate themselves, and become competitive; or they must exit farming completely. However, I believe that distinguishing farmers from non-farmers allows the Ministry to funnel subsidies to the 150,000 market-oriented farmers, while ~300,000 semi-subsistence and subsistence, and part-time farmers are excluded from the subsidy

system. This indicates that the Croatian policy administrators have not yet understood what place family farmers could have in the CAP. They did not recognize that allowing farmers to farm a few hectares of land on the part-time basis is in fact a part of the CAP's idea of income diversification.

The CAP makers recognize that small and medium size farms are principal employers in the rural areas. A study of farms in four OMS—Italy, Greece, Norway, and Netherlands—showed that the economic structure of the areas under study relied on medium (5–20 hectares) and small (less than 5 hectares) enterprises (European Commission 1998:141). Not only do these farms provide employment in the rural areas, but they also play a positive role in maintaining the countryside and environment by providing secure and profitable futures for their families. Diversification is a way of sustaining farming for these small and medium size family farms, and having an off-farm employment is one way of diversifying income. Thus, the Croatian administrators must recognize that even those farmers who farm part-time and cultivate only a few hectares should be included in the national programs for financial and technical assistance.

Distinguishing farmers from non-farmers also allows the Croatian Government to manipulate the average size of the Croatian farms and to actually present a higher number that is closer to the EU average. Based on the data available in the Population Census 2001,⁷⁵ the average size of the Croatian landholdings is 2.4 hectares. However, a

⁷⁵Data about agricultural land comes from three different sources. One is the Statistical yearbook, which relies on the cadastre data. This database includes all the land cultivated and all the farmers, including the non-market-oriented households. This data, however, has not been updated for a long time, and is thus not very reliable. Another source is the Farm Register. The Register includes only farmers who receive support and are registered as market-oriented farms. The last statistical data source is the Agricultural Census 2003, which contains data directly provided by the farmers. This data, although lacking appropriate verification, is the most reliable and provides the figures used by the Ministry for statistical analyses, because it gives the most realistic picture of the current agricultural land use in Croatia (MPŠiVG 2005:33).

Croatian policy administrator, Anita Tkalčević, pointed out that the average size is actually 7 hectares (personal communication: February 19, 2005). She explained that according to the Central Bureau of Statistics,

we have approximately 3 million hectares of cultivable land in Croatia. This includes the land cultivated by everybody who are statistically registered as farmers, which is approximately 440 thousand households. The question is who really is a farmer among those 440 thousand who claim to be farmers. Another source of information about the average size of landholding is our Farm Register of individuals who live off farming on a more serious level. There are approximately 140 thousand such farmers, which then give us an average landholding size of 7 hectares (Anita Tkalčević, personal communication: February 19, 2004).

Tkalčević stated that the Ministry prefers to use its own data sources, because they provide the most reliable information about the amount of arable land.

However, I believe that this higher average farm size does not reflect the true state of the Croatian farming sector. There are 449,896 family farm households who cultivate 860,195 hectares of land, which gives an average farm size of 1.9 hectares (MPŠiVG 2005:35). Only about 150,000 of those are in the Farm Register and their average size is actually 8 hectares (MPŠiVG 2005:30). Citing a higher average farm size serves the Ministry's purpose to channel the most funds to the market-oriented farmers, but it does not serve the majority of the Croatian farmers who produce less for sale and more for subsistence. In this way, the Ministry fails to provide financial support to the farms who most need it, which, combined with the inadequate availability of expert guidance, increases the risk of losing small farms, a development that is contrary to the CAP's goal of enhancing rural living.

Regardless of how friendly or not the Croatian agricultural policy is toward the small farms, it is clear that small and medium size farms dominate European farming landscape. It is also clear that these farms will have to restructure if they want to persist.

Expanding their current production in order to enter the European market is not the option for all these farmers. Instead, most farmers should focus on producing what they can sell locally or regionally. The following section describes programs that exist within the CAP which allow small farmers to find their markets and continue their viability.

A place for small farmers in the market

Since the CAP makers reformed the policy in such a way as to decentralize the authority of the EU, decision-makers in each member country can choose which measures work best for their respective countries. Therefore, in regard to creating an opportunity for small farmers to be in the market, each country could establish a local market in which only small farmers would sell their produce (Hans Gotwald, personal communication: January 26, 2005). The big farmers would be kept out of such a market. By orienting to the local market, small farmers would have fewer costs related to transportation and storage, which would allow them to offer their products at competitive prices. Creating this kind of a market could be a part of the Rural Development measures of each individual country. If a country cannot create such a market, then it must bring small farmers into the market to compete with the big farmers, though this would require that it provide them with support. As Gotwald said, the latter is the path most countries seem to take and Croatia is no different (personal communication: January 26, 2005).

Another alternative for the Croatian small farmers is to find some type of value-added production, as pointed out by Liz Miller, the Member of the Cabinet of the Commissioner for Agriculture and Rural Development (personal communication: January 25, 2005). For instance, they could produce organic food. If there are not enough

organic food consumers in Croatia, they could sell elsewhere in Europe, as it takes one day for organic food be transported to Brussels where there are people who would buy it. Or, they could find an entry to some type of a niche market. Miller gives an example of cheese as another value-added food for which the demand is expected to grow in the future.

Cheese is the market that is going to develop. We know that. This is the area where they can go, because protein is something the world needs. We can produce starch very easily, but protein is expensive. The more prosperous we become, the more protein we eat. When we move away from starchy foods, we move toward more protein (Liz Miller, personal communication: January 25, 2005).

In addition, producing specialty food products is yet another area in which Croatian small farmers might be competitive (Liz Miller, personal communication: January 25, 2005).

There are two types of these products: foods with a specific geographic location (or those produced on a specific soil type or by a certain animal) and traditional foods (or products that have history and reputation).

The CAP administrators reveal that they are quite proud of the European diversified landscapes and its geographically specific food products. Miller asserted that European products like cheddar cheese, Parma ham, Parmesan, Danish Brie, champagne, and various wines are known everywhere in the world (personal communication: January 25, 2005).

This is something we [in Europe] defend very much, internally and internationally, the quality of European products and traditional food. I am not saying that similar food is not being produced elsewhere in the world. But the food produced in Europe is appreciated as such all over the world. I think European products are like no other. There is nothing, nothing that compares with the European product. We nevertheless have to realize where the growing market is and that these products not everyone is producing (Liz Miller, personal communication: January 25, 2005).

Promotion of the food produced in Europe as being like no other in the world explains the EU's commitment to negotiate the right to protect its traditional and regional food at the WTO. As a way to achieve this, the EU is considering crafting an agreement that would give each membership country the opportunity to define its sensitive products (Hans Gotwald, personal communication: January 26, 2005). For these products, the European Commission would maintain higher tariffs in the international market so that their import flow to the EU is less than that of other products. Each member state would have its own list, and the European Commission would decide which of the national products could become specialty products. It would, of necessity, be a relatively short list (Hans Gotwald, personal communication: January 26, 2005). Croatia also could have a list of its traditional products or products linked to a specific geographic location. In fact, an effort exists to recognize Slavonian *kulen*, or a pork sausage produced and cured in a certain way, as a product with a specific geographic location.

It must be mentioned that Croatia has an enormous potential for producing specialty food in its many different geographical regions. For instance, large fields in eastern Slavonia are well suited for monocultural grain production. Hilly slopes of Eastern Slavonia are also known for grapevine production. The country's mountainous region is known for its small fruit orchards, vegetable plots, and free-grazing animals. The Adriatic coast, and especially the islands, has olive orchards and vineyards in terraced fields, irrigated citrus orchards, and sheep grazing freely amidst the small Mediterranean conifers. Some national policy administrators describe this regional diversity as a disadvantage, because agricultural policy will need to have different programs that fit these diverse production systems (Gordan Turek, personal communication: January 19,

2005). However, rather than being a disadvantage, these diverse production systems have a potential to produce almost everything Croatian consumers desire. A smart national policy and informed and clever policy administrators could turn this advantage to the country's own benefit.

After I described the CAP's vision of sustainability and how Štitar family farmers fit these visions it is now time to answer my research question eight: Is it possible to predict how Croatia, and specifically Štitar, will adapt to the CAP by studying the villagers' behaviors during previous regimes and their respective policies? The prediction presented in the following paragraphs is speculative and it reflects my findings as described in the political ecology chapters combined with my understandings of the transformations that Croatian farmers need to take.

Some subsistence and semi-subsistence farmers will certainly exit farming and rent out their land. During my fieldwork, I observed some farmers downsizing. Those were mostly elderly farmers who had non-farming children. It is important to note, however, that these elderly farmers did not sell their land, but preferred to rent it to fellow-villagers in return for a portion of feed from the rented fields. Most elderly households kept some land and continued to feed some pigs and chickens for their own consumption. Holding onto the land or selling it to a fellow-farmer indicates a presence of a will among the Štitar inhabitants' to keep the *atar* farmland and communal pastures intact. With that in mind, I do not foresee much farmland being lost to development as has happened in the US. It is safe to say that even the non-agricultural children will hold on to their family land and rent it to other farmers. If they decide to sell it, they usually sell it to a farmer from the same village.

Moreover, a few Štitar farmers will decide to grow larger. The number of farmers who will be able to expand enough to meet the economies of scale will depend on how much land becomes available. Most likely, only a very few farmers will be able to rent former national collectives land, indications of which were also already present during my fieldwork. Assuming that most small farmers will continue to farm on the part-time basis, their land will be unavailable to the large farmers. Thus, it is safe to say that only a very few Štitar farmers will increase their landholding to more than 50 hectares and continue to grow wheat and sugar beets for sale.

Most farms will remain medium (5–20 hectares) and small (less than 5 hectares) size. I am certain that most active and part-time farmers will adapt to the current changes. Some will adopt a new cash crop and start selling on their farms, or in the Županja and other nearby markets as they have done in the past. For them, agriculture may or may not become a full-time vocation, depending on the availability of off-farm employment and family labor. Some medium and small size farmers may develop secondary on-farm activities, like food processing or making crafts. Although a potential for village tourism exists, I do not imagine it taking much hold in Štitar, at least not in near future. This is mainly because no one is sure what village tourism means and because other Croatian regions are more attractive for tourists than Slavonia.

All of these developments can transform the Croatian farming landscape now dominated by small fields. It is completely left to the Croatian Government to decide which option to take for its rural areas. Will it continue to fund large farms where agriculture is based on large amounts of capital investment? Or, will it begin to allocate money to small farms that are less degrading to the environment? Whichever option the

country chooses, the CAP regulations will minimize the negative environmental impact of agriculture and will increase food production in healthier and more sustainable ways. Apart from such policy implications, there are other outcomes that may be less appealing to the farmers. These are explored in the following section in regard to my research question nine.

The effects of the CAP on farmers

The reformed CAP is not without problems, as its makers are aware. They like to say that it is not a stagnant policy but it is evolving. One downside of the CAP is the amount of subsidies paid to the farmers in the NMS. Since some NMS were reluctant to spend more money on the enlarged EU, the CAP implemented a regulation which allows the NMS to receive only 25 percent of the EU funds in the first years after the enlargement. This amount will increase 25 percent over the following years, until 2013 when the amount is expected to be equal across the EU. Some critics see this payment scheme as problematic for a couple reasons. One is that while the NMS will be receiving fewer subsidies and restructuring to catch up with their old member counterparts, they will also be facing fierce competition on the EU market. Another reason is that since subsidy payments are calculated on the basis of recent production volumes, which for the NMS are about 30 percent lower, even their full level of subsidies in 2013 will actually equal to only approximately 60 percent of the average direct payments per hectare in the NMS. The NMS will get a fair share of the rural development funds, but most of them will use a part of those payments to increase the direct payments and compensate their farmers for the unfair deals with subsidies. Some critics say that, by putting the new

members at such a disadvantaged start, the EU failed to carry out a fundamental reform of the CAP prior to the enlargement (Friends of the Earth Europe 2007).

Another effect of the policy on the farmers is related to the amount of pesticides and fertilizers used. In most NMS, as well as Croatia, yields of some crops are significantly below those technologically achievable, especially in the family farm sector. This reflects the fact that family farmers use less fertilizers and pesticides, which is due to financial difficulty rather than a high level of environmental awareness. However, since the most commonly used way to reach higher yields is to increase the quantity of applied fertilizers and pesticides, it means that the enlargement of family farm production capacities places a greater pressure on the environment and biodiversity. In other words, CAP subsidies and market pressures could direct Eastern European and Croatian farmers toward increasing their fertilizer and pesticide consumption and away from environmental goals. Their respective governments may choose to implement options that mitigate these negative impacts, which the EU certainly offers. However, due to certain flaws in the CAP, these advantages can be reversed and lead to loss of jobs, small farms, and processing enterprises in rural areas. Since it is left to the member country to decide which agricultural models to apply, some countries may decide to spend more money on agri-environmental measures, while other countries, like Croatia, continue to follow the old agricultural model that leads to environmental degradation.

Yet another contradiction within the policy has already taken effect in the NMS, but not yet in Croatia. On one hand, the EU funds for rural development are intended to create more jobs in rural areas, on the other, application of the EU hygiene standards has led to closing down many small, local food processing enterprises which are not able to

comply to EU standards. This is the opposite trend from rural development. Although member countries are able to mitigate the regulations to their advantage, it is inevitable for instance that some slaughterhouses will be closed (Friends of the Earth Europe 2007).

Moreover, another issue with the CAP that has already taken hold in Croatia is its expensive and complicated administrative and control systems. The EU gives funds to help prospective member countries like Croatia to create administrative and control units necessary to run its programs. These include creating an agricultural database, generating satellite images of farming land, and establishing a control agency for managing support programs. With these systems in place, each member country is able to make sure that the information a farmer provides about his production and his farming activities is correct and that he is eligible to receive EU support. Without this control system in place, a member country will not receive EU funds.

The first step for Croatia in meeting this EU requirement was to create the Farm Register. The Register became the central statistical database of agricultural holdings and a part of the administrative system for managing payments to agriculture. The next step is to adopt a Land Parcel Identification System (LPIS), which includes taking satellite images of all the farming land. These images would show, at any moment, precisely what crop is grown and even how many individual trees are in the farmer's orchard. With this system implemented, the Ministry would be able to avoid inconsistencies between what a farmer claims to produce and what is actually in his or her field. It could take Croatia four or five years to fully adopt this very expensive system (Slavica Knežević, personal communication: January 19, 2005).

In addition to Farm Register and LPIS, Croatia needs to establish an agency that will oversee support payments to the farmers. This role is currently and temporarily performed by the Directorate for Market and Structural Support in Agriculture within the Ministry, until a new agency is established. The future Agency for Payments will have a very complicated administration (Anita Tkalčević, personal communication: January 19, 2005). For comparative purposes, the current Croatian Directorate in charge has about 20 or 30 people administering the support payments. Slovakia—another NMS similar to Croatia in size, population number, and importance of agriculture—employs 500 people in its payments agency, 300 of whom are field inspectors. Without such an administrative system, Croatia will not be able to receive any CAP funds (Anita Tkalčević, personal communication: January 19, 2005).

With such tight control systems in place, one cannot help but wonder how farmers must feel about some official in another country being able to see what they grow and how much of it on the computer screen. Carole Crumley reports that French farmers are not happy (phone communication: October 11, 2006). She spoke to a French farmer who cut a dead tree bordering one of his fields and received a note about not asking for approval to do so from Brussels. Needless to say, this farmer was annoyed. It made him feel like there is "an eye in the sky that sees everything he does" (Carole Crumley, phone communication: October 11, 2006). Such close EU control not only challenges the notion of personal freedom, but it also brings into question farmers' ability to be their own bosses and managers of their environment and farm.

Crumley also heard from her French informants that CAP creates conflict between generations (phone communication: October 11, 2006). The conflict begins when a

young farmer/manager decides to expand his production or adopt a new crop, desiring to enter the European market. Often times, such a change in production goals calls for taking out a loan and investing it into buying new technology, building farming buildings, and receiving additional education. These young managers who expose themselves to the uncertainty of the market and put their families into debt often have to fight with their fathers, who ran the farm by investing their own finances and thus were able to farm debt free, though with smaller, short-term ambitions.

Before I explore my last research question, I would like to refer the reader to a very good source where he or she can learn about more about the effect of the CAP on European farmers. It is the Commissioner Fisher Boel's blog at <http://blogs.ec.europa.eu/fischer-boel> where Ms. Fisher Boel regularly posts entries of her activities, asks for feedback on certain issues, and answers farmers' questions. Such a blog is a great indicator of an effort of the EU administrators to make the policy more transparent, and also make it available to the farmers all over Europe. It is an example which Croatian and other national governments should follow.

Women in the CAP

One area to which the CAP has given little attention is the place of women in the policy. Traditionally, farms in Europe have been the shared endeavor of a farming couple and their family, with a woman frequently assisting her husband with every-day farm tasks. As a result, being involved in farming as spouses has meant that women's work in farming is often hidden behind that of their farming husbands. This hidden employment tasks and skills of women was made even worse with agricultural

mechanization, which reduced the need for women's help on the farms as it resulted in masculinization of farming. Not only is women's employment of the farm hidden, but also women are often left out from most agricultural policies. The CAP has made some effort to create equal opportunities for women, although as Fischler and Mira stated, much more remains to be done (European Commission 2002).

The European Commission recognizes the important role that women play on agricultural holdings and in rural areas. Acting as farming managers, spouses, and family members, women are involved in all systems of production. An indication of women's presence on the farms is statistical data saying that in 1997, across the EU-15, 37 percent of the 14.76 million people working on farms as either family or employees were women (European Commission 2002:6). The percentage is most likely even higher in NMS. For instance, in Poland women supply almost half of the labor in farming. They are more heavily involved in mixed grazing, mixed crops, specialist horticulture, and olive growing, which are practices that are less mechanized and that require more manual labor (European Commission 2002:12). Clearly, women have a huge role on the farms.

Moreover, it is shown that women's share of work on the farm drops as the farm size increases (European Commission 2002:25). In other words, as fewer numbers of large farms continue to produce food, fewer women will be needed on the farms. The European Commission recognizes that conditions need to be created, or maintained, that encourage women to remain in agriculture, or at least to continue living on farms. However, the CAP still does not have a single program implicitly designed to support women farmers. It rarely even mentions women when it describes its programs. Miller says that this is so because the programs are aimed at both sexes equally (personal

communication: January 25, 2005). Though women are not directly included in national programs, policy makers in Brussels say that women have equal access to education, training, and other services (Liz Miller, personal communication: January 25, 2005), although the women themselves might not know that. Keeping women in rural areas and on the farm is a component of the social sustainability of the CAP.

The same lack of focus on farming and rural women is found in the Croatian agricultural policy. In 1994, the Croatian Government began to direct some attention to rural and farming women (MPŠiVG 2005:17), but as of yet, no agricultural and rural programs that are directed specifically to women have been designed. The most that has been done in increasing awareness about the role of rural women is organizing an annual Fair on Rural Women. This one-day fair promotes rural women and helps farming women start thinking about themselves as farmers, rather than housewives. Although Štitar farming women continue to work as many hours on the farm as their husbands, especially in more labor intensive parts of production, in the rest of the united Europe, the need for women's help on farms is decreasing. For this reason, EU rural development programs put more emphasis on creating job opportunities for women in rural areas (European Commission 1998:14).

One such program is Leader, which, among other things, directs member states to create programs that involve women. Miller emphasized that the EU has specifically mentioned that women should be an important part of this approach (personal communication: January 25, 2005). The member states' national programs could implement guidelines for assisting farming and rural women. These programs could be aimed at hiring women whose farming husbands are not employed. As a bottom-up

approach, Leader promotes the involvement of women in the programs, but leaves the decision of where to put the emphasis—women, diversification, the environment, or something else—to the member states. Croatia, certainly, is not putting an emphasis on women.

Despite a few efforts to include women in the policy, the bottom line is that not nearly enough is being done on the EU or the Croatian national level to keep women on the farms. I claim that it is not enough just to keep them in rural areas. It is crucial for the viability of the Croatian farms that women stay on the farms, participate in farming activities, and raise the next responsible and knowledgeable generation of farmers.

Summary

In this chapter, I discuss how the EU vision of sustainable agriculture varies from that of Netting, attempting to explore my research question seven. I illustrate that the CAP connects sustainability to market-orientation while Netting described smallholders who engaged in the market on a partial basis, as a strategy of minimizing market risks. I also demonstrate that while for the EU only the farms that are competitive are also viable, Netting relies on genealogy to illustrate smallholders' long-term viability. Lastly, I present ways in which the EU encourages diversification of farming and non-farming activities. I illustrate how Štitar farmers have been diversifying between plant and animals growing, having off-farm employment, working as tree loggers, or providing other non-agriculture related services. The EU administrators want them to diversify in different ways, specifically by developing food processing unit on their farms or providing tourist service. As had happened during previous regimes, it is inevitable that

some traditional ways of income diversification in Štitar will be unrecognized, depreciated, or even banned by the current regime.

This chapter also explores how Štitar farmers fit the CAP. I criticize the national policy that divides Croatian farmers between market and non-market-oriented. I point out that such categorization allows the Ministry to ignore the majority of the small family farmers and it allows the Ministry to funnel the largest part of the support funds toward fewer largest farmers who also put more pressure on environment. The Ministry designed programs that are meant to bring more benefits to all family farmers and rural inhabitants, but not enough money is being allocated to these programs.

Moreover, I answer my eighth research question by predicting how Štitar farmers will adapt to the CAP. Based on their behaviors during previous regimes and their respective policies, I suggest several ways in which Štitar smallholders may once again adjust to the changed circumstances. Responding to these influences, a few family farmers will certainly grow large and continue to produce traditional crops for the market. Other farmers will adopt new crops and continue to grow subsistence on one part of their fields, on a full or part-time farming basis. Yet other farmers—I predict relatively few—will either exit farming, or will continue to produce subsistence, sell some surplus locally, and continue to secure most of the household income in employment.

In relation to my research question nine, I make clear that the CAP decentralized its power and allowed each member country to decide what programs best suit the country's agricultural situation. It is now for decision-makers of each country to decide whether they will focus their respective national policies on the environment, rural development, or women; or, they can choose to continue to allocate the most EU funds toward large-

scale agricultural production that can be more damaging to the environment.

Unfortunately, Croatia and most other NMS, choose to allocate more funds to supporting large farmers and their desires to expand areas under agricultural production. I emphasize that not enough attention is being given to the small family farmers, to strengthening rural areas in general, and to de-masculinization of farming. Lastly, in relation to my research question ten I remind why women's presence on the farm is important and I suggest that the policy must speak to women much more openly than it has been in the past.

With this description of the EU and the Croatian agricultural policies I have come to the end of my writing. I answered my ten research questions by exploring past regimes that influenced farming and the rural landscape of the present, describing the role of traditional practices and customs in securing farm viability, presenting the current state of agriculture in Croatia, and stating the next directions of change. The last chapter summarizes my main points.

9 Conclusions

In the global market economy, European family farmers are challenged by both consumers' environmental and health food preferences and the cheaply produced food from large-scale farms in Europe, the United States and developing countries. Family farmers who have traditionally been described as uneducated, traditional and resistant to innovations are now being labeled as uncompetitive and non-viable. In contrast to such negative characterizations there is a wealth of evidence that speaks to their flexibility and adaptability. Their skills in timing agricultural operations with seasonal climate changes, their long tradition of livestock husbandry, their mobilization of household labor for a wide variety of tasks both on and off-farm, and their keen subsistence and marketing decisions contribute to their economic success and the farms' viability. In this last chapter I intend to discuss each of my research problems in the course of a general summary and interpretation.

With its emphasis on the little explored family farming system in Croatia, this dissertation described small farmers who are neither irrational nor tradition-bound. Instead, their agricultural patterns are the consequence of long and short-term adaptations based on observation and experimentation. In order to explore and explain their methods of adaptation, I provided a broad history of how farming practices changed through political regimes of the Byzantine, Ottoman, and Austro-Hungarian Empires, as well as

communism. The historical research allowed me to demonstrate the long-term resilience of the Štitar farming households and to locate many of their successful practices in their history (see question one).

Historical analysis showed that Štitar inhabitants have always been challenged from two directions: natural phenomena and extra-local, sometimes foreign political intrusions. First and foremost, Štitar's location in the alluvial flood plain and the fact that it has been subject to high underground water tables have greatly affected yields and thus the household incomes of generations of Štitar smallholders and settlers. The combination of a climate that brings the greater part of precipitation during the growing season along with high underground water levels and poor soil drainage have always dictated the course of their farming lives. Despite this, generations of Štitar farmers resisted by using several strategies of survival and remained in the village.

Štitar smallholders secured the viability of generations by producing a subsistence base and surpluses which has allowed them to partially engage in the exchange and market. This combination allowed them to keep basic market independence, and thus their relative stability. In addition, their resilience was aided by cultivating scattered fields which allowed them to minimize risk of a crop loss. Livelihood was further secured by diversifying household incomes between farming and non-farming activities. These varied from being soldiers during the Ottoman and Austro-Hungarian Empires to being craftsmen and factory workers from the time of WWI to the present. Such diversification aided in their remarkable ability to adjust in times of crisis by increasing their labor inputs, decreasing their consumption, when necessary, partially withdrawing from market relations (Netting 1993:61).

In the political sphere, although Croatia has always kept close ties with Western Europe, Štitar's close proximity to Bosnia brought upon it influences from eastern cultures. For instance, living in the family cooperative or *zadruga* as a protective mechanism from foreign incursions was found during the Ottoman Empire, and most likely existed before it. After Turks left the area, the Austro-Hungarian Monarchy stepped in and left its trace in elements and behaviors such as villages' and fields' spatial organization, the cadastre records and the register of land ownership, and the bridges that connect streets with individual houses. Other influences of the Monarchy include the late 19th century deforestation which forever changed the landscape and some social aspects of rural living. It introduced the first industry to the area and brought the earliest off-farm employment opportunities to its residents. At the same time, deforestation took away a habitat that provided food, building materials, and fuel for the Monarchy soldier-farmers. This industrialization continued during communism whose legacy includes village cooperatives, nationally owned collectives, and contracted production. Now, Štitar is about to enter the largest sphere of interests ever, that of the EU and the WTO.

Another major event that took place during Austro-Hungarian Monarchy is the disappearance of the *zadruga*. The reasons behind it continue to be one of the most popular themes of discussion among Štitar inhabitants and Croatian scholars. In this dissertation, I suggested an explanation to be found within an extended family, perhaps acting in concert with external influences. I claimed that *zadruga's* viability is closely tied to the family's developmental cycle. Štitar's extended families simply reached a point in their domestic life cycle where their labor forces grew too large for their land. They found it necessary to split the land between the new families. Instead of several

married couples living together, newly formed families continued to live as an extended smallholder's family with the typical household consisting of one set of elder parents, one of their sons and his family, and any unmarried children of the elder parents. Nowadays, rarely does more than one married son with his family live in the parental household. Other sons establish new homes and continue to farm their part of the land inheritance or they start a different career.

The disappearance of the *zadruga* was an important sign of changes that were occurring within a household, but also within the larger society. Some of the external factors that aided in the division include introduction of cheap imported market goods, the prevalence of the monetary economy, and industrialization and wage labor opportunities. These new introductions created job opportunities and formed different desires for goods among the farming families. The division of the *zadruga* as a response and adaptation to the changing political and economic circumstances speaks to the Štitar smallholders' flexibility, which only increased their security and viability over the long term.

What makes the prosperity of smallholders possible (see question two)? One of the key ingredients I found to be the existence of a well-defined household hierarchy which maintains a disciplinary authority between parents and children. Young men and women are raised with a deep sense of responsibility and respect for the elderly, whether that be a household head, a matron, or a stranger. Appropriate leadership from the household head and matron combined with the respect and commitment of the household members strongly contributes to the prosperity and continuation of a farm. Prosperity also depends on the managerial skills, farming experience, and ecological knowledge of the household

head. Elderly Štitar farmers accumulated years of farming experience that is then passed on to their children. Some of these farmers continue to practice their authority and managerial role, while other elderly farmers keep the role of a household head, but let the younger generation manage the farm. Possessing the right to hold and transfer property, manage their own labor, and being one's own boss makes farming attractive to the young farmers who then stubbornly stay on the land even when it provides only a portion of their necessary income.

In addition, I found that the household matron's role was as important to the prosperity of the farm as the—usually male—farm's manager. Together with men, women produce food and secure the household income. They manage the farm when the men are absent. In addition to providing for the farm, women provide the irreplaceable role of raising the next generation of responsible and committed farmers. Women teach their children values of respect, responsibility, obedience and authority. Selfless mothers often remain in unhappy marriages for the benefit of their children who would inherit the land and assure the continuation of the family lineage and homestead. Unfortunately, the importance of women's presence on the farms and their crucial roles are often not recognized by the agricultural policies (see question ten). The CAP and the Croatian policy do, to some extent, recognize women's importance in terms of labor and income contributor, but they overlook other important roles such as gardeners, food processors, homestead managers, nurturers and caregivers to the next generation of farmers.

Other traditional practices that contribute to the farm prosperity and viability are divided inheritances, controlled marriages, celibacy, and the dividing of families, which all act to circulate wealth in the Štitar community. Wealth or poverty of a farm is not

fixed, but can change in the same generation or among generations (Netting 1993:229–230). Inequality between farms exist at any point in the family developmental cycle, due to life-cycle differences in landholding size, the changing ratio of consumers to workers, demographic occurrences of birth, death, and marriage, the inheritance of fields, or wages from off-farm employment. While one generation increases the landholding and brings the farm to prosperity, another generation divides the landholding and continues existence on fewer hectares of land.

I have opposed several claims of the policy administrators. I argued that farmers' hesitation in accepting certain modern practices is tied to the difference in goals between the smallholders and the policy makers (see question three). Smallholders' household economic decisions are based on the need to secure survival by keeping control of the farm and passing it on to the next generation. This means that a farm must support the growth and development of the succeeding generations until they can support themselves. It also means that a farm must be able to support the older generation long after they cease to contribute directly to the productive activity of the family business. For these reasons, I found Štitar farmers to forgo immediate benefits that might come from cash crop specialization in order to accumulate savings they can invest in land and farm improvements for the future generations to enjoy (Netting 1993:17). They also avoid debt whenever possible.

Štitar smallholders have always employed methods of managing risk and uncertainties. They continue to be wary of activities that promise high cash rewards and instead choose activities that offer good opportunities for maintaining their present standard of living. Thus, they continue to prefer to grow traditional crops of small grains

and maize to new crops like fruits and vegetables. The production of traditional crops involves less risk, secures their subsistence base and allows them to keep a certain degree of market independence. At the moment, they are avoiding producing fruits and vegetables, although the Ministry encourages such, because these efforts would make them directly responsive to the market demands that may be short-lived. Producing what the market wants secures profit, but that is often not the goal of Štitar smallholders. The production of traditional crops along with their ecological and farming experience allowed generations of Štitar farmers to manage through uncontrollable variances in nature, politics, and the economy, and they continue to operate from that same perspective.

As such, Štitar smallholders' economic decisions are often not in line with the goals of the modern rural development programs. Social scientists who study small farmers warn of rural development programs which promote ways to increase productivity based on capital intensification instead of labor intensification. Such programs, like the CAP, involve increasing the cash needs of farmers who then take loans to purchase more land and machinery and to renovate their farms. With these new forces in play, traditional agricultural systems that have been able to adapt to long-term ecological and economic forces find themselves under the threat of being transformed into systems that directly respond to highly variable and volatile prices and market trends.

One of the most interesting discoveries I made in the course of this dissertation resulted from exploring the relationship between household type, market involvement, and the contribution of employment and government payments to the household sustainability. I provided empirical evidence that the household incomes of high market

households are the highest on average, indicating that farming work is more profitable than low skilled employment in construction or industry, as Netting (1993) discovered among the smallholders he studied (see question four). This conclusion explains why most Štitar farmers who own land continue to farm, even if only on a part-time basis. Secondly, the calculations of labor productivity reveal that high market households have the highest productivity ratio among household types, although it is only slightly above 1.0. That is rather low when compared with the productivity of some smallholders Netting described. This conclusion confirms common local knowledge that farming in the ways that Štitar farms do is not profitable, which is why they continue to diversify their household incomes. Thirdly, it is striking to learn that between 30 and 40 percent of the household income of agricultural households is derived from various types of government payments. This is the best evidence that farming in Europe is becoming increasingly government supported. This also indicates that Croatian farmers are already relying less on direct agricultural income and more on farming subsidies and other kinds of governmental payments.

Another resemblance of the Štitar farmers to the smallholders Netting described is in their level of intensification (see question five). I found the Štitar farmers to be intensive for several reasons. They almost completely abandoned practicing fallow, other than for a few months between the harvesting of one crop and the planting of the next. They use a system of annual rotation in which one or more successive crops are followed by fodder. They work between 5 and 7.2 hours per day, six days a week, all year round, which is almost as much as the most intensive cultivators Netting described.

I have called Štitar farmers as "partially intensive" for several reasons. First, they live in the area of only modest population pressure. Second, although they used to rely on manual labor more during previous political regimes, currently I find them to be in a less intensive phase because the political forces that make farmers intensify are absent and many of them have an opportunity to expand their production. Third, in comparison with the intensive smallholders Netting described, their overall labor productivity is lower. Despite, they are closer to the intensive cultivators Netting studied than they are to the extensive farmers. There are situations when they decide to increase their labor inputs rather than to mechanize, thus allowing them to invest less expensive non-renewable energy in farming than is invested in extensive land use systems. In addition, although they cultivate larger fields than some other intensive smallholders, the agricultural practices they employ and the decisions they make keep them more sustainable in Netting's terms and less degrading to the environment than the farmers in extensive agricultural systems.

Moreover, Štitar farmers who grow small grains and maize on 5, 10, or 15 hectares work more hours than an average, wage-economy working person (see question six). I provided empirical evidence to support my claim, based on measuring not only farmers' labor in farming, but also in non-farm related activities which are sometimes neglected in such calculations. Although farming in Štitar is affected by seasons to some degree, the slack times in crop growing are offset by animal husbandry and seasonal work away from the farm. Thus, diversification allows farmers to work as many hours as any other worker.

Also contrary to the policy administrators' claim that some small farms are unprofitable and non-viable, I suggested that scale is not the best measure of profitability. Although there certainly are farms that are too small to survive, there also are small and primarily subsistence-oriented farms that produce food for the household's consumption while selling some surplus and providing employment and livelihood for the rural family. Even after a history of agricultural policies whose goals have been to increase landholding size, the data I provide suggests that the households with less than 3 hectares of cultivable land have persisted and are thus viable in terms of cultural ecology. Netting also refuses to define a farm size that is too small to be efficient, but instead provides examples of intensive smallholders who increase output per unit of land while conserving natural resources, although quite small in acreage (Netting 1993:151).

Štitar farmers' agricultural practices, behaviors, and decisions resemble Netting's sustainable smallholders more than they do the European CAP model of sustainable and viable farmers (see question seven). Štitar farmers have always produced healthy food, although their practices do not match the high EU health standards. In addition, they have always slaughtered animals for household own consumption and for sale, but the practices they use in animal slaughtering do not adhere to humane meat production practices as promoted by the EU. Moreover, they have always enhanced soil fertility by means produced on the farm. They have used less mineral fertilizers and pesticides than is commonly recommended. In terms of the CAP priorities, their farming practices are not necessarily viewed as good environmental practices. Instead, they are strongly encouraged to begin practicing methods that are beneficial for the environment and biodiversity. Lastly, Štitar farmers have always been viable, but not in terms promoted

by CAP because their surplus production is too small to make them competitive. The policy carries clear instructions about how small family farmers can become viable and competitive, by for instance, developing other on-farm activities such as agro-tourism, craft production, or food processing.

While the reformed post-2003 CAP has recognized the value of the small family farms and somewhat shifted its focus away from large farms and toward small and medium size ones, the policy still has a several problem areas (see question nine). First, market integration does not allow smallholders to remain sufficiently independent of economic fluctuations. It may force them to reduce their subsistence production, which is the base of their long-term security and resilience. I claimed that this market-oriented decision-making framework may not allow for farm survival in bad years. Secondly, orienting young farmers toward taking restructuring loans puts them in debt and it certainly put them in conflict with their elders who farmed as much as possible without debt. Thirdly, with its effort to control spending, the EU is establishing an expensive and rigid surveillance system that harms farmers' personal freedoms and making it impossible to be their own bosses and managers of the environment they well know.

Despite challenging natural phenomena and the new political ideology and policies, I am certain that Štitar smallholders have a chance to adjust their behaviors and agricultural practices and to continue farming sustainably (see question eight). I claim that many Štitar smallholders will continue to strike a balance with property size and production volumes on one side, and family and labor exchange resources on the other. They may increase their production volumes, but only up to a certain point, being aware that large capital investments could threaten to impose debt on future generations. I

found some farmers decide to take loans, build new stables, and increase their herd size to the point when they have to mechanize some operations or hire labor. However, most farms will continue to produce their household subsistence and some surplus, and will secure continuity by diversifying income in farming and off-farm activities. Rarely will those who own land decide to sell it. Instead they will continue to cultivate it, or at the minimum, lease it to other farmers in order to provide income. Based on the knowledge of previous changes in farming practices, I can speculate that many of the Štitar smallholders will adjust their habits and traditional ways of farming to fit the current policy and will continue to provide for the next generation.

Implications for the future

Throughout the dissertation, I identified a implications that local agricultural practices of Štitar smallholders have for rural and agricultural policies. First, the evidence I provided in the case studies suggests that the extended family of an elderly couple, their married children, and their grandchildren is a model family for a viable family farm. Such a smallholding has enough family labor available to cultivate 15 or more hectares of land and to provide a decent income from diversified sources. As long as the household does not increase its landholding size beyond a certain point, it is able to keep its labor demands and energy inputs relatively stable. Instead of trying to transform this sustainable system into more profitable and often more extensive farms, policy makers should recognize the value of the smallholder household farming and the importance of the smallholders' long-term goals of preserving the farms for future generations. The policy should also recognize the values of household hierarchy,

ecological knowledge, and smallholder household economy, and their importance in ensuring the farm's viability independently of the market and political forces.

Secondly, the CAP needs to more openly direct member countries toward focusing attention on local and regional markets. Creating such markets gives an opportunity to great many small and medium farmers to sell their surpluses. An agricultural model that relies on subsistence production, income diversification, and local trade could be a way for many more small and medium size family farms to remain viable and continue preserving traditional rural landscape.

Apart from CAP, Croatian agricultural policy needs to reflect an understanding of the role of the small farms in rural economy and it needs to carry programs that will reward small farmers for their role in preserving traditional European rural landscape. Croatian policy also needs to distance itself from a top-down approach and instead, it must place knowledge and well being of the farmers at its center. Criticism of farmers for their lack of knowledge or rejection of novelties is misplaced. Recognition of smallholder adaptability and sustainability is the first priority of viable policy for the future.

APPENDIX A

ŠTITAR SWEEP BY POLITICAL REGIMES

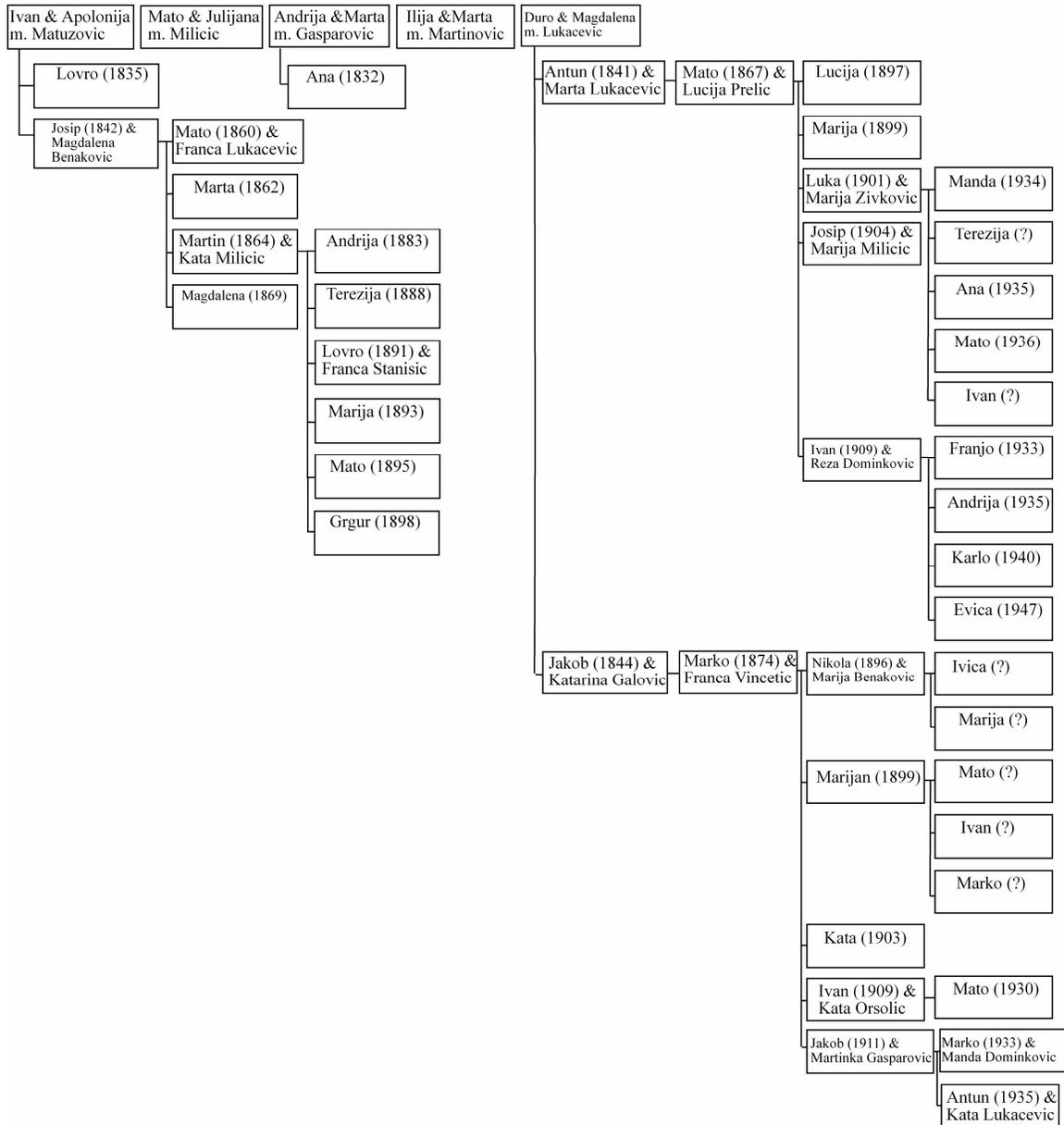


Figure 3.1 – Family tree of the Dominković lineage with member birth dates if known, from the 18th century until 1945

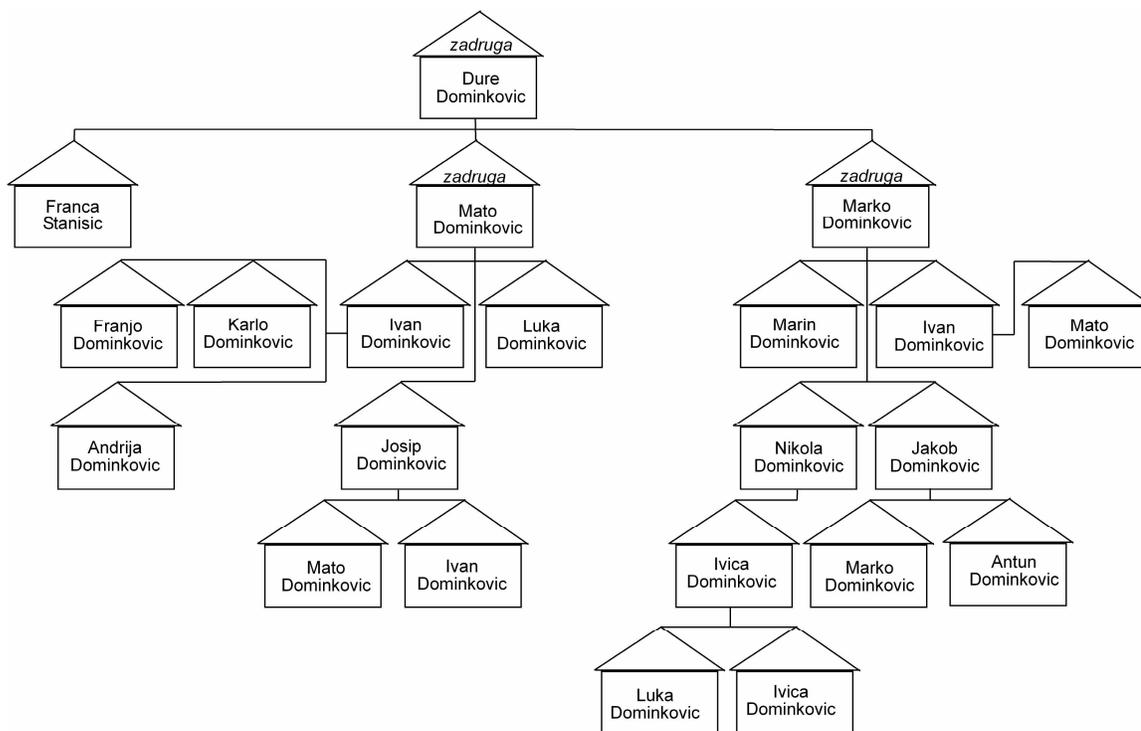


Figure 3.2 – Individual households that separated from the zadruga of Đuro Dominković, from the 19th century until 1945

Table 3.3 – List of Štitar inhabitants who cultivated the land of Utorkovište in the Ottoman Bosnia, most likely in 1725

Last name, first name	Last name, first name
Andrić Grgo	Miličić Šimo
Baltić Blaž	Miličić Ilija
Baotić Petar	Miličić Mikula
Batić Damjan	Ognjanović Marijan
Biberović Iija	Oršolić Tadija
Biberović Jakob	Oršolić Andrija
Biberović Petar	Oršolić Gašpar
Bošnjaković Ilija	Oršolić Ivan
Bošnjaković Stjepan	Oršolić Marko
Ćović Ivan	Oršolić Martin
Dabić Stipo	Oršolić Šimo
Dominković Marko	Prelić Ivan
Dominković Martin	Rogić Andrija
Ferković Jakob	Rogić Ivan
Ferković Petar	Udovica Vida
Filipović Damjan	Vidaković Andro
Filipović Ilija	Vidić Juro
Filipović Miško	Vincetić Pavo
Jakobović Blaž	Vincetić Stjepan
Jović Luka	Vučetić Mihajlo
Karlič Ilija	Vukasović Martin
Kobašević Marin	Vukić Damjan
Kobašević Marko	Vukić Ivo
Kobašević Šimo	Vukić Marijan
Mašić Stjepan	Vukić Maroš
Matijević Bartol	Živković Božo
Merđan Pavo	Živković Josip
Miličić Juro	Živković Marijan
Miličić Marko	Živković Nedo
Miličić Nedo	Živković Petar
Miličić Petar	

Table 3.4 – List of catholic population in Utorkovište, 1741

Household head name	Adults (<12)	Children (>12)
Baotić Damjan	4	0
Bartolović Pero	3	0
Benaković Franjo	2	3
Blažević Stjepan	2	3
Bošnjaković Nikola	4	4
Čobić Marijan	5	3
Čolić Đuro	2	2
Davnjan Damjan	4	1
Davnjan Šimo	2	1
Dominković Ilija	3	4
Đurin Petar	2	4
Filipović Anto	2	3
Filipović Mijo	3	3
Klaić Ivan	2	5
Klaić Marko	6	3
Klaić Pero	4	1
Kobašević Šimo	2	4
Lončarević Mijo	2	0
Lucić Bartol	2	2
Mališić Anto	2	2
Marošević Pavle	11	6
Matjević Blaž	5	2
Matjević Pavle	5	3
Matuz Mato	4	1
Miličić Franjo	2	1
Miličić Marijan	4	2
Nedo Pero	4	1
Ognjanović Luka	5	5
Oršolić Josip	7	3
Oršolić Tomo	2	4
Perković Pero	3	1
Tepkić Anto	5	3
Vincetić Petar	2	0
Vukić Marijan	9	2
Živković Ivan	2	3
Živković Pavle	2	1
Živković Stjepan	3	3
Total:	133	89
Total population:		222

Table 3.5 – List of Štitar household in 1764

Household head name	No. of members
1. Benaković Mato	16
2. Biberović Ivan	16
3. Biberović Pava	4
4. Blažević David	7
5. Bušić Filip	5
6. Bušić Luka	9
7. Dabić Martin	4
8. Dabić Stipan	15
9. Dominković Marko	16
10. Dominković Petar	7
11. Dugalić Petar	7
12. Ferković Marijan	6
13. Filipović Đuro	8
14. Filipović Pavo	3
15. Gašparović Antun	18
16. Gašparović Marijan	6
17. Gašparović Toma	8
18. Ilijašević Marijan	5
19. Ilijašević Marko	4
20. Ilijašević Mato	12
21. Ilijašević Šimo	13
22. Karlić Grga	15
23. Karlić Petar	8
24. Kobašević Pavo	12
25. Lukačević Abraham	24
26. Lukačević Josa	6
27. Lukačević Luka	4
28. Lukačević Miško	3
29. Lukačević Šima	4
30. Martinović Marko	8
31. Martinović Petar	18
32. Mihailović Petar	5
33. Miličić Antun	13
34. Miličić Ilija	5
35. Miličić Ilija	8
36. Miličić Mato	4
37. Miličić Mato	8
38. Miličić Pavo	13
39. Miličić Pavo	4
40. Miličić Toma	7
41. Mitrović Mato (ili Marko)	8
42. Mitrović Šimo	2
43. Mrđanović Karla	8
44. Mrđanović Pavo	4

Household head name	No. of members
45. Obašenović Ilija	2
46. Oršolić Đuro	4
47. Oršolić Kuzman	5
48. Oršolić Marijan	15
49. Prelić Petar	2
50. Varzić Petar	3
51. Vincetić Augustin	5
52. Vincetić Đuro	10
53. Vincetić Ilija	5
54. Vincetić Ilija	6
55. Vincetić Marijan	20
56. Vincetić Marijan	1
57. Vincetić Pavo	3
58. Vincetić Stipan	18
59. Vukić Nikola	4
60. Vukuć Ivo	7
61. Zečević Mato	4
62. Žiga Božo	1
63. Živković Antun	12
64. Živković Ilija	5
65. Živković Marijan	17
66. Živković Marijan	6
67. Živković Pavo	6
68. Živković Petar	6
Total	547

Description of the village Štitar at the end of the 18th century

(The excerpt is taken from Buczynski et al 1999)

Štitar is located 2 ³/₄ hours⁷⁶ from Šamac and Kruševica, 1 ¹/₄ hours from Županja, a whole 1 ³/₄ hours from Babina Greda, and 2 hours from Gradište. Upstream from the village, at the *čardak* Bogaz, the Sava River is 190 to 200 meters wide and 13 to 14 meters deep. Further from there, it is 260 meters wide and only 5 to 8 meters deep. The riverbed is muddy, mixed with some sand. The bank at the *čardak* Roka, toward the

⁷⁶During the Austro-Hungarian Monarchy it was believed that one hour was needed to walk a distance of 6,000 steps or ¹/₂ mile.

čardak Stari Štitar is not overgrown, while the rest of the bank is densely overgrown by trees. The Turkish settlement of Tolisan in Bosnia can be seen from the *čardak* Stari Štitar.

A levee was built to protect nearby villages and fields from floods. Just south of the village, the levee makes a detour from its normal position right next to the river to instead bisect a large peninsula that has been created by a switchback in the river. As a result of not being protected by the levee, this terrain is still often flooded and the floods can stay for three to four weeks. As one might expect, the area is rich in swamps and bogs.

The local field paths are not paved and therefore are travelable only by heavy carriage, and only during dry months. During rains, the paths are almost useless and can be traveled only in light carriage, especially those to Šamac and Babina Greda

The village church and the colonel's house are made out of wood.

The river transportation of food is developed, as well as on-land transportation toward Vinkovci and Brod.

APPENDIX B
FROM SOCIALISM TO DEMOCRACY IN TRANSITION

*Table 4.2 – Percent of people absent for work in country and abroad in
Županja town, 2001*

	Total population*	Total absent		Absent for work			
		No.	%	In the country		Abroad	
				No.	%	No.	%
Županja town	16,586	3,188	19.20	115	0.69	1,386	8.35
Županja	13,920	2,625	18.85	92	0.66	1,139	8.18
Štitar	2,666	563	21.11	23	0.86	247	9.26

Source: RH-DZS-PS 2001. Tabela 2. *Odsutno stanovništvo iz naselja popisa prema vremenu i razlogu odsutnosti, po gradovima/općinama 2001.* Vukovarsko-Srijemska županija. Grad Županja.

* In the Census 2001 tables, there are two categories of total population. One is **total number of enumerated persons** and it refers to "all persons enumerated in the Republic of Croatia that were either present in their place of usual residence (permanent residents), were temporarily absent, or were enumerated as temporarily present in the place of the Census". Another category is **total usual resident population**. "The criterion used is the so-called "place of usual residence" with the time limit of absence up to 12 months. The Recommendations on Statistics of International Migrations, Revision 1, UN, New York, 1998, determine that a person is considered a long-term international migrant after 12 months, which was applied in the Census 2001" (RH-DZS-PS 2001). In the tables I used in this dissertation I use **the total number of enumerated persons**, which includes those individuals who work abroad and come to Croatia every other years. I thought these individuals should be included because they claim to have an address in Croatia.

According to the last Census in 2001, roughly 10 percent (210 individuals) of the total population of Štitar were absent for work in the country or abroad (see Table 4.2). Absent for work is different than total absent, which in Štitar was about 21 percent. Total absent population includes absence at the moment of the census for various reasons, such as employment, education, visit to a family, business trip, and so on (RH-DZS-PS 2001).

Table 4.3 – Agricultural households by size in the Županja district, 1948

Total hectares of fields per household	<3	3.0 – 4.5	4.6 – 8.0	>8
Per cent of households	35	21	23	21

Source: Kokanović 1985. *Radnički i narodnooslobodilački pokret u Županjskom kraju.* Savez Udruženja Boraca NOR-a Hrvatske Općinski Odbor Županja. Pp.14–15

Table 4.3 reveals that in 1948 in the Županja district, 35 percent of the households cultivated less than 3 ha of land, 21 percent cultivated between 3 and 4.5 ha, and 23

percent cultivated between 4.6 and 8 ha. Only 21 percent of households cultivated more than 8 ha of land.

Table 4.4 – Households by income source in Županja district, Županja, and Štitar, 1971

Area	Total households	Agricultural		Mixed		Non-agricultural	
		No.	%	No.	%	No.	%
Županja district	13,279	6,317	48	1,436	11	5,526	41
Županja	2,512	353	14	225	9	1,934	77
Štitar	593	331	56	67	11	195	33

Source: Urbanistički Institut SR Hrvatske. 1979. *Općinski prostorni plan Županja*. Pp. 46.

Table 4.4 shows that in 1971, there were 13,280 households in the Županja district, of which 48 percent were agricultural, 41 percent were non-agricultural, and 11 percent were mixed households that did some farming but also had an employment income. Županja city alone had only 14 percent of agricultural households, 9 percent mixed households, and 77 percent non-agricultural households. Štitar had 56 percent of agricultural households, 11 percent of mixed, and 33 percent of non-agricultural households.

Table 4.5 – Unemployment rate⁷⁷ for Croatia, Vukovar-Sirmium County, and Županja Township, 2001

	Croatia	Vukovar-Sirmium County	Županja Township
Total population	4,437,460	204,768	16,383*
Economically active	1,952,619	82,798	6,993
Employed	1,553,643	60,876	5,120
Unemployed	398,976	21,922	1,873
Inactive	2,475,654	121,471	N/A
Unemployment rate	20.4	26.5	26.8

Source: RH-DZS-PS 2001. Table 28. *Economically active population, by usual activity, by occupation and sex, by town/municipalities* and Table 1. *Population by age, sex, economical activity and place of usual residence on 31st March 2004, by counties*.

*This number incorporates the population of Županja city of 13,775 people and Štitar of 2,608, as presented in Table 4.1 above.

The Vukovar-Sirmium County unemployment rate at 26.5 percent is still higher than the Croatian unemployment rate at 20.4 percent in 2001 (see Table 4.5). On the Županja Township level, unemployment rate of 26.8 is also higher than the national and slightly higher than the County.

Table 4.6 – Agricultural population of Croatia, Vukovar-Sirmium County, and Županja Township, 2001

	Croatia	Vukovar-Sirmium County	Županja Township
Total population	4,437,460	204,768	16,383
Agricultural population	246,089	19,202	618
Active agricultural population	166,044	10,718	355
Supported agricultural population	80,045	8,484	263
% agricultural population	5.5	9.4	3.8

Source: RH-DZS-PS 2001. Table 9. *Agricultural population by activity, by town/municipalities*.

Table 4.6 shows that in total population of Croatia agricultural population accounts for 5.5 percent. The share of active agricultural population in the total population has decreased from 1991 to 2001, from 13.1 percent to 8.5 percent. In Županja, only 3.8

⁷⁷Unemployment rate is calculated as the ratio of the number of unemployed to the total sum of both unemployed and employed, or economically active population (labor force).

percent of the population is agricultural, which is to be expected since most of its population lives in the city.

APPENDIX C
PROSPERITY AND ECONOMIC SECURITY

**Description of Figure 5.1: Interval estimates for proportions based on time
allocation studies**

Model formulation

We use the scenario shown in Figure 5.1 (page 160) to illustrate the general methodology. The activities of individuals were classified into four categories: animal-related, plant-related, household-related, and other. The multinomial distribution is a natural probability model for the frequency of occurrence of unordered categorical data when the total number of observations is fixed ahead of time. A standard way to model the expected proportions of multinomial categories is with a baseline category logit model (Agresti 2002), also called a generalized logit model (Stokes et al 2000).

To simplify the explanation of the model, we initially ignore the hierarchical structure of the data. Let Y_i be a random variable denoting the categorical response at observation time i . Let $\pi_i^{(s)} = P(Y_i = s | \mathbf{x}_i)$, $s = 1, 2, 3, 4$, where s is the observed categorical response and \mathbf{x}_i is a potential set of explanatory variables, be the category probabilities. We assume Y_i has a multinomial distribution with parameters $\{\pi_i^{(1)}, \pi_i^{(2)}, \pi_i^{(3)}, \pi_i^{(4)}\}$. If we choose one category, for instance $s = 1$, as the baseline category, then we can model the gender-specific log odds of observing category s relative to category 1 as follows.

$$\log \frac{\pi_i^{(s)}}{\pi_i^{(1)}} = \beta_0^{(s)} + \beta_1^{(s)} \text{Gender}_i, s = 2, 3, 4 \quad (1)$$

Having established the form of the model, we next incorporate the data structure. Each member of a randomly selected household was repeatedly observed over time. Thus individual observation times are nested in individuals and these in turn are grouped by household. To account for the potential heterogeneity this introduces in the data, we include random effects that are shared by related units occupying the same level of the hierarchy. Thus if i denotes the observation time, j the individual, and k the household, we can account for the observational heterogeneity as follows.

$$\log \frac{\pi_{ijk}^{(s)}}{\pi_{ijk}^{(1)}} = \beta_0^{(s)} + \beta_1^{(s)} \text{Gender}_j + u_{jk}^{(s)} + v_k^{(s)}, s = 2, 3, 4 \quad (2)$$

$$u_{jk}^{(s)} \sim N(\mathbf{0}, \Sigma), v_k^{(s)} \sim N(\mathbf{0}, \Psi)$$

where Σ and Ψ are 3×3 covariance matrices. The random effects $u_{jk}^{(s)}$ account for the similarities that exist between observations coming from the same person. The random effects $v_k^{(s)}$ account for similarities that arise because some observations were made on individuals coming from the same household. Individually the $u_{jk}^{(s)}$ and $v_k^{(s)}$ are assumed to have multivariate normal distributions in which the observations corresponding to different categories (different values of s) but coming from the same observational unit (same value of j and k) are correlated. Random effects from different sets of random effects ($u_{jk}^{(s)}$ versus $v_k^{(s)}$) or different observational units (different j or k) are assumed to be independent. Marginal estimates of the $\pi_i^{(s)}$ are obtained from eqn (2) by averaging over the random effects and solving for the individual $\pi_i^{(s)}$.

$$\pi_{ijk}^{(s)} = \frac{\exp(\beta_0^{(s)} + \beta_1^{(s)} \text{Gender}_j)}{1 + \sum_{s=2}^4 \exp(\beta_0^{(s)} + \beta_1^{(s)} \text{Gender}_j)} \quad (3)$$

$$\pi_{ijk}^{(1)} = 1 - \sum_{s=2}^4 \pi_{ijk}^{(s)}$$

The model described by eqn (2) can be fit with the multilevel modeling package MLwiN. In MLwiN parameter estimates are obtained via iterative generalized least squares (IGLS) using a first order linearization to approximate the marginal quasiliikelihood (MQL). This is generally not the most accurate protocol for estimating the variances of the random effects but is typically quite satisfactory for obtaining estimates of fixed effects and their standard errors. Numerical results were confirmed by refitting the same model using the SAS procedure GLIMMIX (SAS Institute 2006) which obtains parameter estimates by maximizing the residual pseudo-likelihood.

An additional complication in estimation arises from the fact that the data were obtained as a stratified random sample. In principle, the $\pi_i^{(s)}$ should be obtained by constructing linear combinations of the stratum-specific estimates in which the coefficients are the sampling fractions in the stratified design (see Table 1.2, page 27). Currently, it is not possible to include sampling weights directly in MLwiN for a multinomial model. As a work around, we instead estimated eqn (2) separately for individual strata, converted the results to individual probability estimates using eqn (3), and then combined the stratum results using their sampling fractions to obtain the overall population estimate in the standard fashion (Schaeffer et al 1990:117). Unfortunately, at the individual stratum level there were insufficient data to estimate the parameters for

both sets of random effects in eqn (2). As a result we are left with fitting a model with only one of the sets of random effects, eqn (4).

$$\log \frac{\pi_{ijk}^{(s)}}{\pi_{ijk}^{(1)}} = \beta_0^{(s)} + \beta_1^{(s)} \text{Gender}_j + u_{jk}^{(s)}, s = 2, 3, 4 \quad (4)$$

The correlation between observations made on the same person is accounted for in eqn (4), but not the potential correlation among individuals coming from the same household. The latter could not be estimated for all strata with the data available.

Using the “animal” category as the baseline category, the parameter estimates that were obtained using MLwiN are shown in Table 1 below.

Table 1– Stratum-specific parameter estimates using eqn (4)

Parameter	Stratum Estimates			
	I	II	III	IV
$\beta_0^{(1)}$, house intercept	2.61	-0.06	0.76	1.85
$\beta_0^{(2)}$, plant intercept	4.24	0.69	1.47	3.10
$\beta_0^{(3)}$, other intercept	0.46	-1.93	-0.88	-0.79
$\beta_1^{(1)}$, house gender coefficient	-1.78	-1.67	-1.85	-1.84
$\beta_1^{(2)}$, plant gender coefficient	-0.75	-0.28	0.50	-0.80
$\beta_1^{(3)}$, other gender coefficient	-0.78	1.16	0.48	-0.37

Interval Estimates

The parameter estimates from the baseline multinomial logit model (see Table 1 above) are typically assumed to have a joint asymptotic multivariate normal (MVN) distribution. Using this fact, confidence intervals for the population values of the generalized logit parameters can be constructed. Because the equations for the category probabilities, eqn (3), involve nonlinear functions of the parameter estimates, there is no simple mapping of the confidence intervals for the parameters onto confidence intervals

for the category probabilities. To circumvent this problem we obtained interval estimates for the probabilities using a parametric bootstrap method, or what's also been called predictive simulation (Gelman and Hill 2006). We describe the method next.

Assuming that the 6×1 vector $\boldsymbol{\beta} \sim \text{MVN}(\hat{\boldsymbol{\beta}}, \hat{\boldsymbol{\Sigma}})$, we randomly generate a large number of realizations of $\boldsymbol{\beta}$ from this distribution separately for each stratum. These different realizations reflect the inherent sampling variability of our data. Eqn (3) then can be used to map each realization of $\boldsymbol{\beta}$ onto a corresponding stratum-specific estimate of $\pi_i^{(s)}$. Using the sampling fractions reported in Table 1.2 (page 27), the stratum-specific estimates can be combined to obtain the corresponding population estimate $\pi_{str}^{(s)}$. The multiple realizations of $\pi_{str}^{(s)}$ thus obtained are treated as an estimate of the sampling distribution for $\pi_{str}^{(s)}$ from which the quantiles can be obtained and used to construct percentile interval estimates with any desired coverage probability.

Displayed in Figure 5.1 are 50 percent (thick line) and 95 percent (thin line) credibility intervals as well as point estimates for each proportion. We choose not to ascribe any probabilistic interpretation to these intervals but instead treat them as representing an uncertainty smear about the displayed point estimates. The 50 percent interval is a fairly unreliable indicator of the uncertainty (having only a 50:50 chance of including the true value), while the 95 percent interval is a near sure thing. A reasonable measure of uncertainty thus can be treated as lying somewhere in between these two extremes.

**Description of Table 5.2: Calculating the percent of work hours spent in labor
exchange**

Basic Strategy

The data were first restricted so that only work observations were considered. A household member was typically observed to be working n_i times of which m_i of those times the member was observed to be engaged in labor exchange. Clearly both of these variables are random. If n_i were fixed then $X = m_i$ would have a binomial distribution with parameter p , the probability of engaging in work exchange given that the person was working. This is assumed to be constant across individuals within a stratum, except as modeled below. But n_i is not fixed and therefore the situation is more complicated.

For the data under consideration the n_i tended to be fairly small numbers and were nowhere near their upper bounds, the maximum number of observations made on a given member. Even though theoretically a Poisson random variable is unbounded, for small rate constants as we have here the upper boundary will never be reached in practice. Thus a Poisson distribution for n_i is not an unreasonable model. Proceeding in this fashion we have

$$\begin{aligned} N &\sim \text{Poisson}(\lambda) \\ X|N = n_i &\sim \text{Binomial}(n_i, p) \end{aligned}$$

The joint probability mass function is shown next.

$$\begin{aligned} P(X = m_i, N = n_i) &= P(X = m_i|N = n_i)P(N = n_i) \\ &= \binom{n_i}{m_i} p^{m_i} (1-p)^{n_i-m_i} \times \frac{e^{-\lambda} \lambda^{n_i}}{n_i!} \end{aligned} \tag{1}$$

Estimation proceeds by treating the data for each household member as consisting of the ordered pair (m_i, n_i) , constructing the loglikelihood using eqn (1), and obtaining the maximum likelihood estimates of p and λ . To enforce range constraints on p and λ link functions were used to link these parameters to model parameters and predictors. The predictor gender was incorporated into the analysis as follows.

$$\begin{aligned} \log \frac{p}{1-p} &= \beta_0 + \beta_1 \text{ Gender} \\ \log \lambda &= \beta_2 \end{aligned} \quad (2)$$

Confidence intervals

To obtain confidence intervals for p , the proportion of work time spent in labor exchange, predictive simulation was used, also called the parametric bootstrap. In this approach both inferential uncertainty and predictive uncertainty are incorporated into the interval estimates obtained. From likelihood theory we can assume that

$$\begin{bmatrix} \hat{\beta}_0 \\ \hat{\beta}_1 \\ \hat{\beta}_2 \end{bmatrix} \sim N(\boldsymbol{\beta}, \boldsymbol{\Sigma})$$

where $\boldsymbol{\Sigma}$ is estimated by the inverse of the Hessian matrix obtained as a byproduct of the maximum likelihood estimation.

Predictive simulation for this problem begins by randomly generating new parameter

estimates from a multivariate normal distribution with mean $\begin{bmatrix} \hat{\beta}_0 \\ \hat{\beta}_1 \\ \hat{\beta}_2 \end{bmatrix}$ and variance-

covariance matrix $\hat{\boldsymbol{\Sigma}}$. 1000 such simulations were obtained. Using eqn (2) each

simulation provided estimates of p and λ . For each observation in a stratum we then randomly generated a separate value of n_i using a Poisson distribution with parameter λ . With this value of n_i we then generated m_i (the number of exchange observations) from a binomial distribution using the estimated value of p . For each simulation we then estimated the proportion of work activity spent in exchange as $\frac{\sum m_i}{\sum n_i}$. This then is the parametric bootstrap estimate of p for this simulation.

A 95% confidence interval for p was obtained from the 0.025 and 0.975 quantiles of the bootstrap distribution of p based on all 1000 simulations. This is just the standard percentile bootstrap confidence interval.

Table 5.3 – Activity types as used in time allocation studies in Štitar

Level 1	Level 2	Level 3
O = entire household absent		
K = home and present in the household	IA = Individual activity	Pt = Drinking/Eating Od = Resting Sp = Sleeping Hg = Hygiene Pz = Doing homework, studying, reading Ig = Playing alone Mo = Praying Gt = Watching TV, listening to the radio Ir = Making crafts Os = Other
	BP = Caring for people	Bp = Caring for a sick person Bd = Caring for a child Os = Other
	PK = Household and yard activities	Gk = Building or repairing a house Ck = Cleaning a house Md = Sweeping/washing/organizing a yard, cutting grass Pj = Preparing meals, serving food, storing food Pp = Washing dishes, doing laundry, ironing Sd = Chopping/bringing in wood, building fire Os = Other
	PS = Livestock related activities	Ph = Preparing animal feed, feeding and caring for the animals Cs = Cleaning stalls Dk = Milking cows Kz = Butchering and/or processing animals

		Os = Other
	PB = Agriculture related activities	Pm = Preparing or repairing tools/machinery Kb = Working in vegetable garden Sz = Unloading/storing/transporting grain Pz = Processing agricultural products (such as grinding, pickling, etc.; includes foraged herbs and making plum brandy) Os = Other
	GA = Social activities	Rp = Conversing Sm = Playing music/games with others Os = Other
V = individual is not at a household, but away	OA = General activities away from a house	Uk = Visiting a bar/friend/relative De = Doing errands Nm = On vacation Uc = In church or at the cemetery Us = In school Nm = In college away from the village Um = In the forest Id = Playing outside of the household Re = Recreation (including hunting or fishing) Os = Other
	AS = Livestock related activities	Nz = Taking animals to pasture Ss = Caring for the animals at a field house Kv = Slaughtering animals away from home Os = Other
	AB = Agriculture related activities	Pn = Checking the fields On = ploughing or discing Mo = Other mechanized cultivation operations (manuring, fertilizing, seeding, harvesting) Ko = Manual maintenance of the fields (hoeing, weeding, raking, etc.) Os = Other
	AP - Off-farm work related activities	Dp = Part-time hired labor at another household or private business, registered Dn = Part-time labor, unregistered Rl = Work away from the village, registered Rn = Work away from the village, unregistered Pp = Full-time job, registered Pn = Full-time job, unregistered Cr = Self-employed Np = Unregistered home craft Ru = Agricultural and other service labor Rr = Reciprocating labor Os = Other
	AT = Market related activity	Ku = Buying animals or crops Pu = Selling animals or crops Ov = Attending the market to gather information and socialize Os = Other

APPENDIX D DIVERSIFICATION

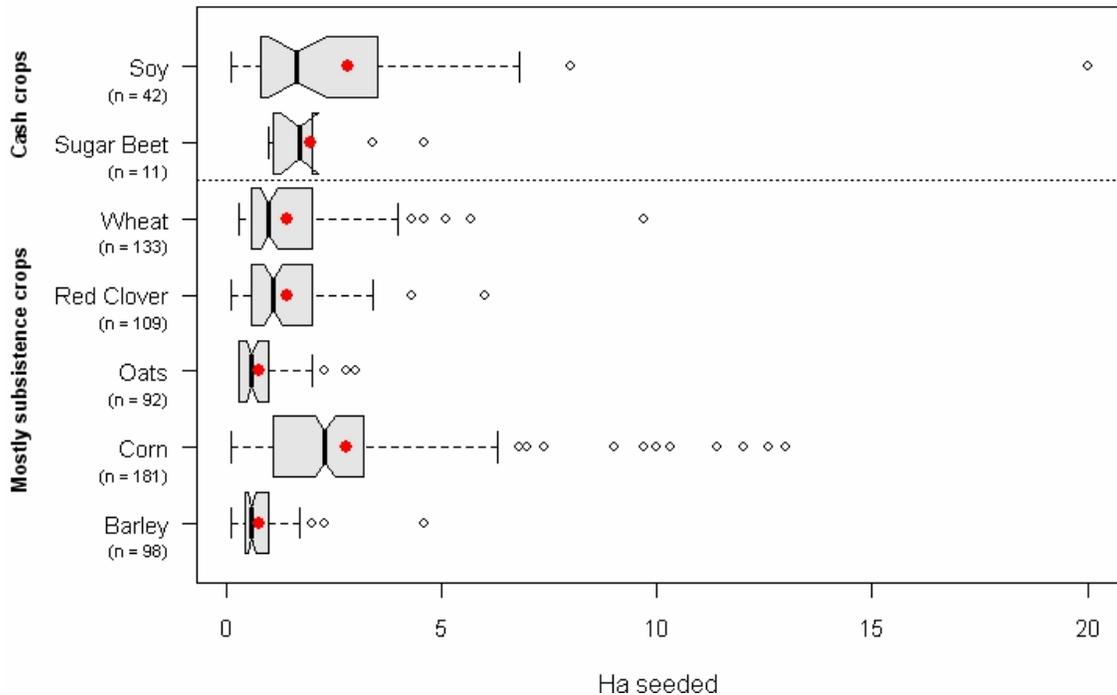


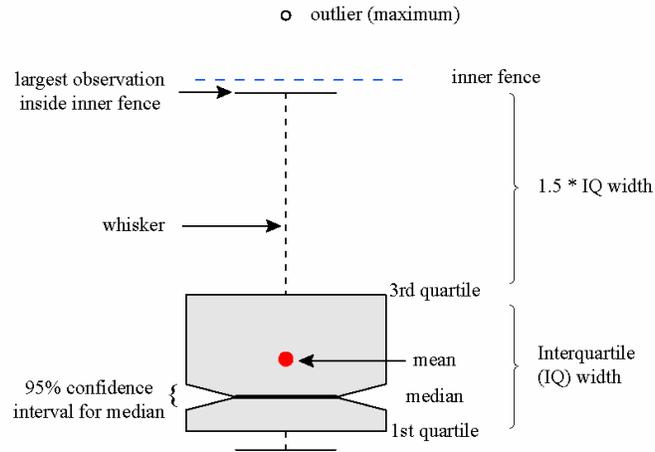
Figure 6.1 – Average total hectares seeded by crop type in Štitar, 2003

Note: Variability estimates do not include FPC, therefore they are universally too large. Thus, this is a conservative test, because we are less likely to find significant differences, even if they exist.

(See below for an explanation of the box plot).

We can see that almost equal amount of hectares were seeded with corn and soy, followed by sugar beets, wheat, clover, barley, and oats. Most households seeded between 1 and 2.5 ha of corn, and a smaller number of households seeded more than 6 ha. Among the 11 households who seeded sugar beets in 2003, most of them seeded between 1 and 2 hectares and only a very few households seed more than 2 ha. More households seeded soy, and most of them seeded it on between 1.5 and 3.5 hectares. Red clover and wheat were seeded on similar amounts of hectares, mostly between 1 and 2 hectares. Barley and oats were seeded on 1 or less hectares.

Box plot explanation



There are five important numbers represented in this graph type. The very bottom and the top lines represent the lowest and highest data values, or minimum and maximum. The three lines that form the box indicate the 25th, 50th, and 75th percentiles with the middle line of the box being the median. The first quartile is the median of the lower half of the data and third quartile is the median of the upper half of the data. The outliers are the points that lie outside the box and whisker plot.

The term used to describe the data inside the box is the inner quartile range. The inner quartile range is calculated by subtracting the lower quartile from the upper quartile. The lower end of the whisker is calculated by multiplying the inner quartile range by the number written beside the extreme range, and then subtracted that number from the lower quartile. To calculate the extreme range, the inner quartile range is needed. The upper end of the whisker is calculated by using that same number written by the extreme range and adding it to the upper quartile. Any data outside of the whiskers is called an outlier.

The notches that appear at the median range are called confidence bands. If the notches of two crops do not overlap then the medians can be declared to be significantly different from each other. Notches that overlap indicate crops whose seeding levels are not significantly different. For instance, more hectares are devoted to corn than all other crops, except soy.

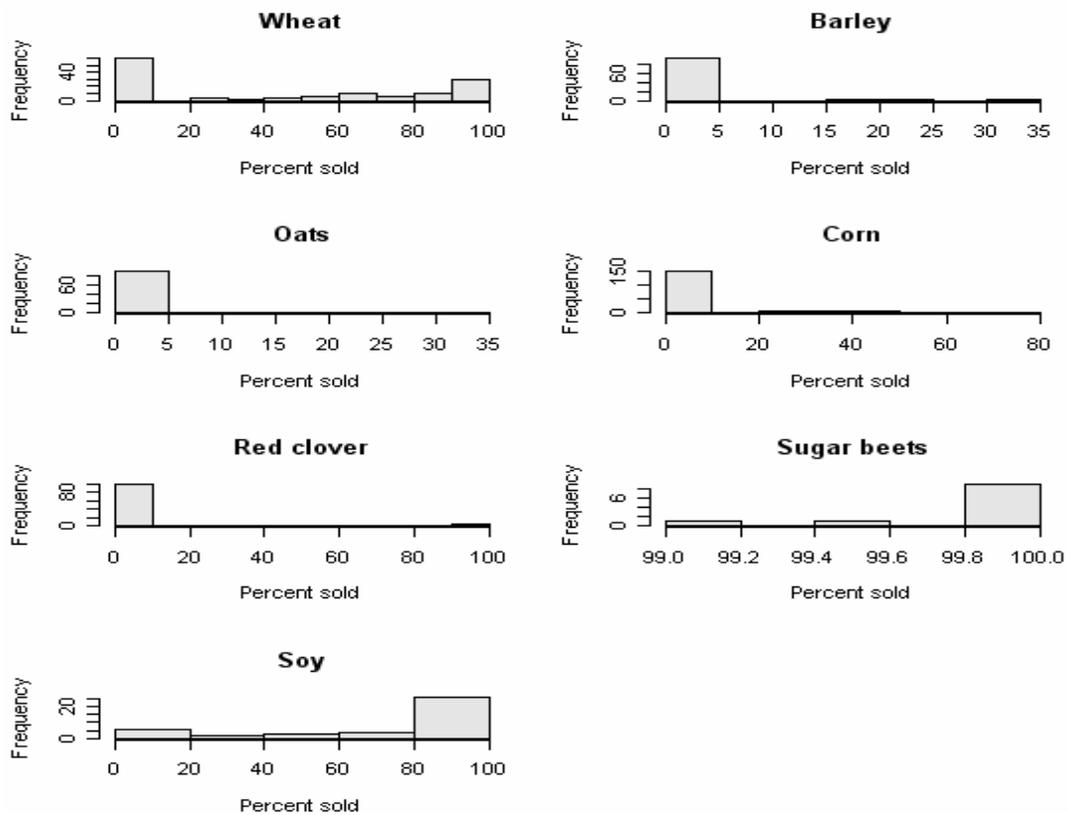


Figure 6.2 – Crop frequency sold

All the distributions, except wheat and soy, are unimodal, meaning that the largest fraction of households either keeps everything or sells everything. Most of barley, oats, corn, and alfalfa are kept for a household consumption. Wheat and soybeans are partially kept, and only sugar beets are sold in full in most of the households.

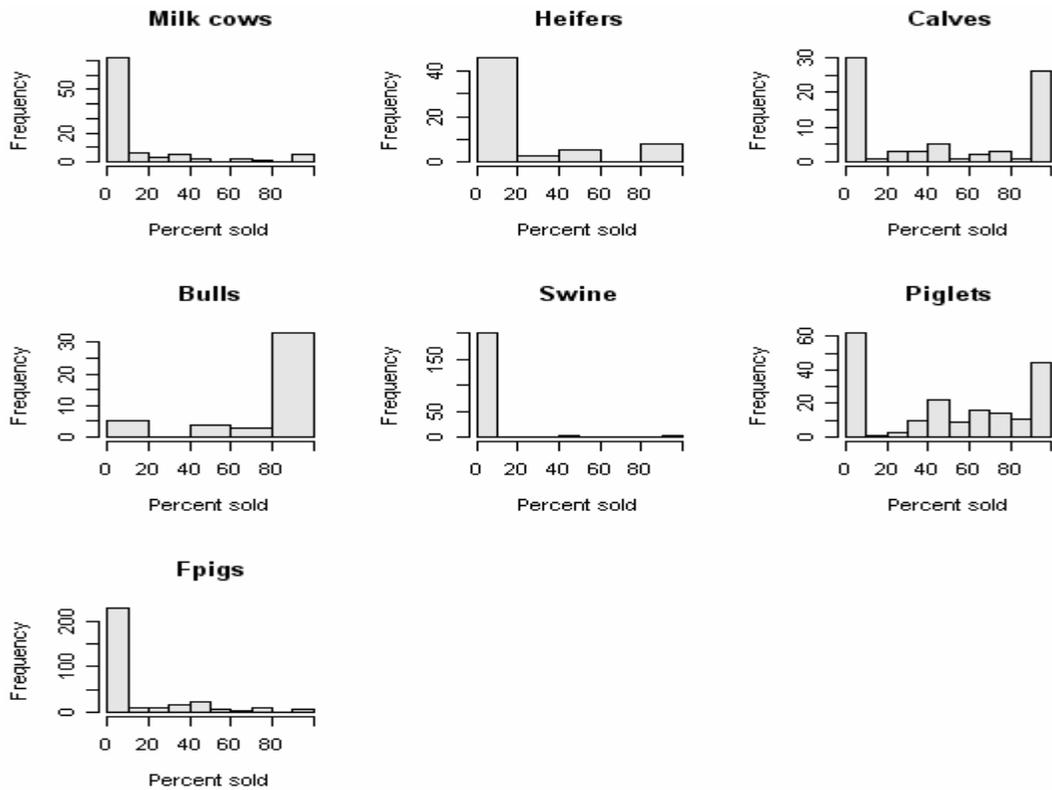


Figure 6.3 – Animal frequency sold

Calves and piglets distributions are bimodal, meaning that the largest fraction of households sells either nothing or everything. The mean does not characterize individual households very well because most households are in one of the two largest fractions. With piglets, however, more people are willing to depart than from calves. It is also interesting to notice that most households keep their milk cows and heifers with which they then replace a sick or and old cow or expand their milk production volume. Similarly, most households keep swine for reproduction and fat pigs for slaughtering. Most households sell bulls and those that are kept are too young to sell. This statistics, however, is ignoring the herd size.

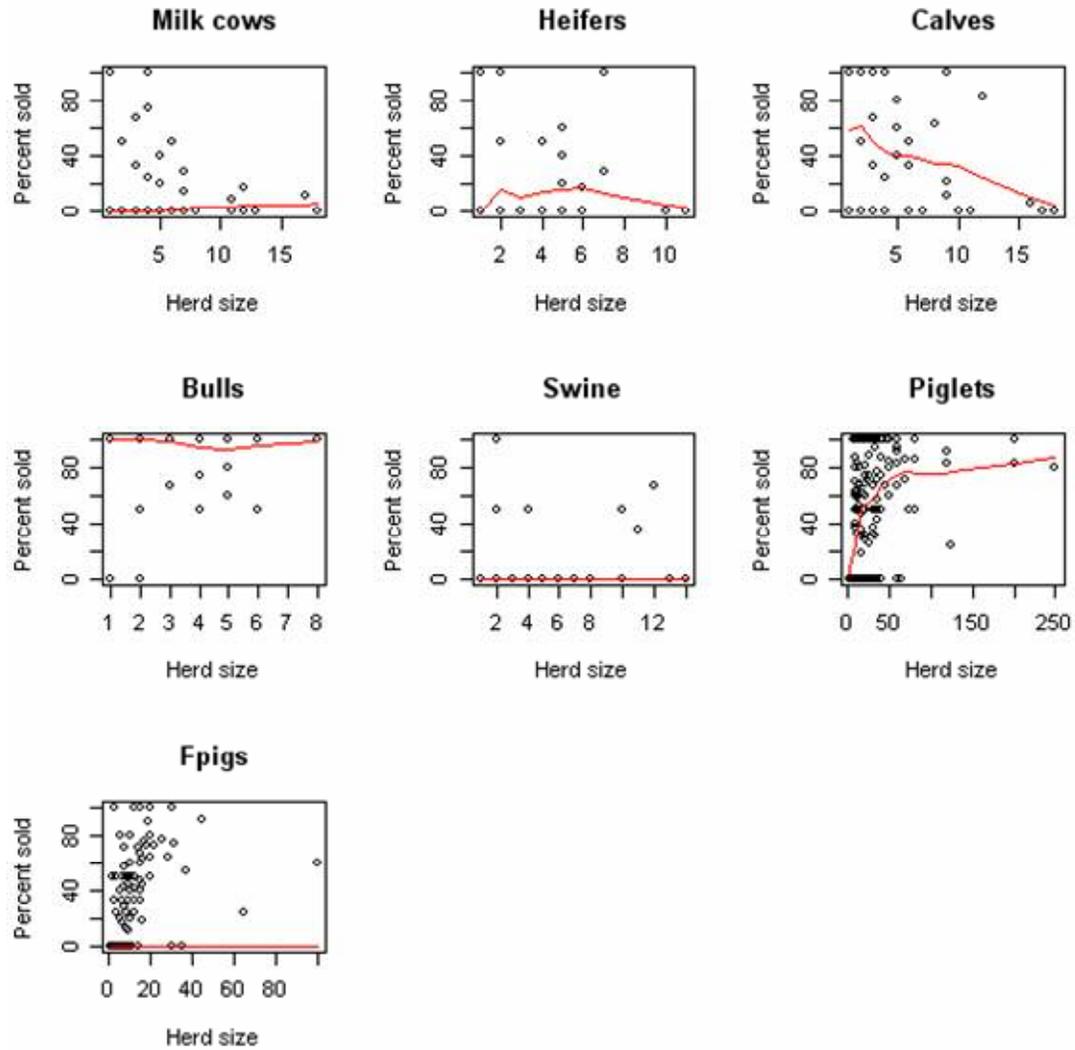


Figure 6.4– Animal frequency sold in relation to herd size

The herd size affects the behavior only in the case of calves and piglets. Households who have more calves tend to keep them which is a reflection of the farming policy. If a farmer owns three female calves within 6 months old he receives a production subsidy. The picture is opposite with piglets. Households that have more piglets sell more.

Table 6.1 – Household profiles

<p>6.1a. Household profile: Gabrijel Prelić Number of members: 6 Age range: 3–60 Total land cultivated, ha: 21 Owned, ha: 10.6 Rented, ha: 10.4 Farmyard, ha: 0.04 Garden, ha: 0.3 Orchard, ha: 0.6 Farming income, HRK: 113,767 Plant production: 34,259 Animal husbandry: 46,817 Other: 32,691 Non-farming income, HRK: 19,576 Total household income, HRK: 133,343</p>	<p>6.1b. Household profile: Ivan Martinović Number of members: 6 Age range: 19–79 Total land cultivated, ha: 19 Owned: 8 Rented: 11 Farmyard, ha: 0.2 Garden, ha: 0.15 Orchard, ha: 0.6 Farming income, HRK: 195,566 Plant production: 62,612 Animal husbandry: 99,713 Other: 33,241 Non-farming income, HRK: 46,800 Total household income, HRK: 242,366</p>
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Note: The profile is missing HRK amount for agricultural service provision, which I was not told about.

<p>6.1c. Household profile: Jakob Dominković Number of members: 2 Age range: 39–67 Total land cultivated, ha: 8 Owned: 8 Rented: 0 Farmyard, ha: 0.1 Garden, ha: 0.14 Orchard, ha: 0.6 Farming income, HRK: 108,125 Plant production: 5,600 Animal husbandry: 77,351 Other: 25,174 Non-farming income, HRK: 0 Total income, HRK: 108,125</p>	<p>6.1d. Household profile: Marko Vincetić Number of members: 6 Age range: 6-81 Total land cultivated, ha: 16 Owned: 9 Rented: 7 Farmyard, ha: 0.4 Garden, ha: 0.14 Orchard, ha: 0.6 Farming income, HRK: 95,148 Plant production: 1,000 Animal husbandry: 47,048 Other: 47,100 Non-farming income, HRK: 24,216 Total household income, HRK: 119,364</p>
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<p>6.1e. Household profile: Josip Dabić Number of members: 5 Age range: 16-44 Total land cultivated, ha: 1.7 Owned: 0 Rented: 1.7 Farmyard, ha: 0.05 Garden, ha: 0.02 Orchard, ha: 0.14 Farming income, HRK: 15,622 Plant production: 0 Animal husbandry: 8,022 Other: 7,600 Non-farming income, HRK: 53,790 Total household income, HRK: 69,412</p>	<p>6.1f. Household profile: Mirko Lukačević Number of members: 3 Age range: 34-62 Total land cultivated, ha: 8 Owned: 6 Rented: 2 Farmyard, ha: 0.14 Garden, ha: 0.14 Orchard, ha: 0.14 Farming income, HRK: 46,968 Plant production: 0 Animal husbandry: 41,891 Other: 5,077 Non-farming income, HRK: 16,791 Total household income, HRK: 133,343</p>
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Note: Income made by their working children, despite one of them living in the household, was not included. I was not given this information.

<p>6.1g. Household profile: Josip Kobaš Number of members: 2 Age range: 64-68 Total land cultivated, ha: 6.9 Owned: 6.9 Rented: 0 Farmyard, ha: 0.07 Garden, ha: 0.07 Orchard, ha: 0 Farming income, HRK: 70,695 Plant production: 6,600 Animal husbandry: 62,567 Other: 1,528 Non farming income, HRK: 22,348 Total household income, HRK: 93,043</p>	<p>6.1h. Household profile: Franjo Topić Number of members: 4 Age range: 8-36 Total land cultivated, ha: 0 Farmyard, ha: 0.01 Farming income, HRK: 0 Non-farming income, HRK: 31,395 Total household income, HRK: 31,395</p>
--	---

<p>6.1i. Household profile: Matej Tomić Number of members: 6 Age range: 3-35 Total land cultivated, ha: 0 Farmyard, ha: 0.64 Garden, ha: 0.03 Orchard, ha: 0 Farming income, HRK: 0 Non-farming income, HRK: 91,450 Total household income, HRK: 91,450</p>
--

Analysis of income data

The survey package in R can be used to fit regression models using the `svyglm` function. The claim for this function is that it respects the sample design. In other words, it accounts for the sampling fractions in a stratified random sample thus making it possible to draw valid inferences at the population level. In the function below, 1 = non-market households, 2 = high market, 3 = medium market, and 4 = low market.

```
laura<-read.table('C:/Documents and Settings/Laura D/My Documents/R
workspace/Diaries/MultiplComp.Ch6.csv', header=T, sep=',')
#include stratum population sizes
laura1<-data.frame(c(2:4,1),c(55,62,130,261))
colnames(laura1)<-c('hh.code','total.pop')
laura2<-merge(laura,laura1)

#load survey package
library(survey)
#create design object for a stratified random sample
laura.obj<-svydesign(id=~1,strata=~hh.code,data=laura2,fpc=~total.pop)
#obtain separate stratum mean estimates
svyby(~total.income,~hh.code,laura.obj,svymean)
```

hh.code	statistic.total.income	SE
1	59997.69	8911.087
2	163682.89	30761.758
3	112913.56	13506.405
4	77740.40	10477.984

```
#create a factor with Helmert contrasts
laura2$f1<-factor(laura2$hh.code,levels=c(1,4,3,2),
labels=c('no market n=13', 'low market n=10', 'medium market n=9',
'high market n=9'))
laura2$f<-laura2$f1
contrasts(laura2$f)<-'contr.helmert'
contrasts(laura2$f)
```

	[,1]	[,2]	[,3]
no market	-1	-1	-1
low market	1	-1	-1
medium market	0	2	-1
high market	0	0	3

```
#next create an ordered factor version of this
laura2$fo<-ordered(laura2$hh.code,levels=c(1,4,3,2))
laura.obj<-svydesign(id=~1,strata=~hh.code,data=laura2,fpc=~total.pop)
```

```
#fit each model: first the ordered factor model
summary(svyglm(total.income~fo,design=laura.obj))
Call:
svyglm(total.income ~ fo, design = laura.obj)
```

```
Survey design:
svydesign(id = ~1, strata = ~hh.code, data = laura2, fpc = ~total.pop)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	103583.6	9075.7	11.413	1.11e-13	***
fo.L	77419.1	21821.4	3.548	0.00108	**
fo.Q	16513.3	18151.5	0.910	0.36884	
fo.C	-410.2	13519.6	-0.030	0.97596	

```
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

(Dispersion parameter for gaussian family taken to be 2026943174)

Number of Fisher Scoring iterations: 2

From this output we could conclude that there is a significant linear trend in income (the fo.L term, L for linear) as a function of market involvement. (The other terms are for a quadratic Q and cubic C trend). Fitting an ordered factor like this assumes that the different market categories are equally spaced, which may not be appropriate in this case. Thus, we use Helmert contrasts, which allows for a less restrictive assumption that still takes some advantage of the ordering. With Helmert contrasts, the mean of the current category is compared to the mean of all the previous categories. The coding scheme is shown on the previous page.

```
summary(svyglm(total.income~f,design=laura.obj))
Call:
svyglm(total.income ~ f, design = laura.obj)
```

Survey design:
svydesign(id = ~1, strata = ~hh.code, data = laura2, fpc = ~total.pop)

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	103584	9076	11.413	1.11e-13	***
f1	8871	6877	1.290	0.20508	
f2	14682	5052	2.906	0.00615	**
f3	20033	7856	2.550	0.01505	*

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for gaussian family taken to be 2026943174)

Number of Fisher Scoring iterations: 2

From the output we would conclude that:

1. Low market is not significantly different from no market.
2. Medium market is higher than the average of no and low market.
3. High market is higher than the average of no, low, and medium market.

Technically, these statements should be taken rather loosely. They would be exact statements if the different categories had the same number of observations in them.

Now these results might be somewhat questionable because there is evidence that the variance changes as we move from category to category. As we see below, the standard deviation steadily increases with the mean.

```
tapply(laura2$total.income,laura2$f,sd)
```

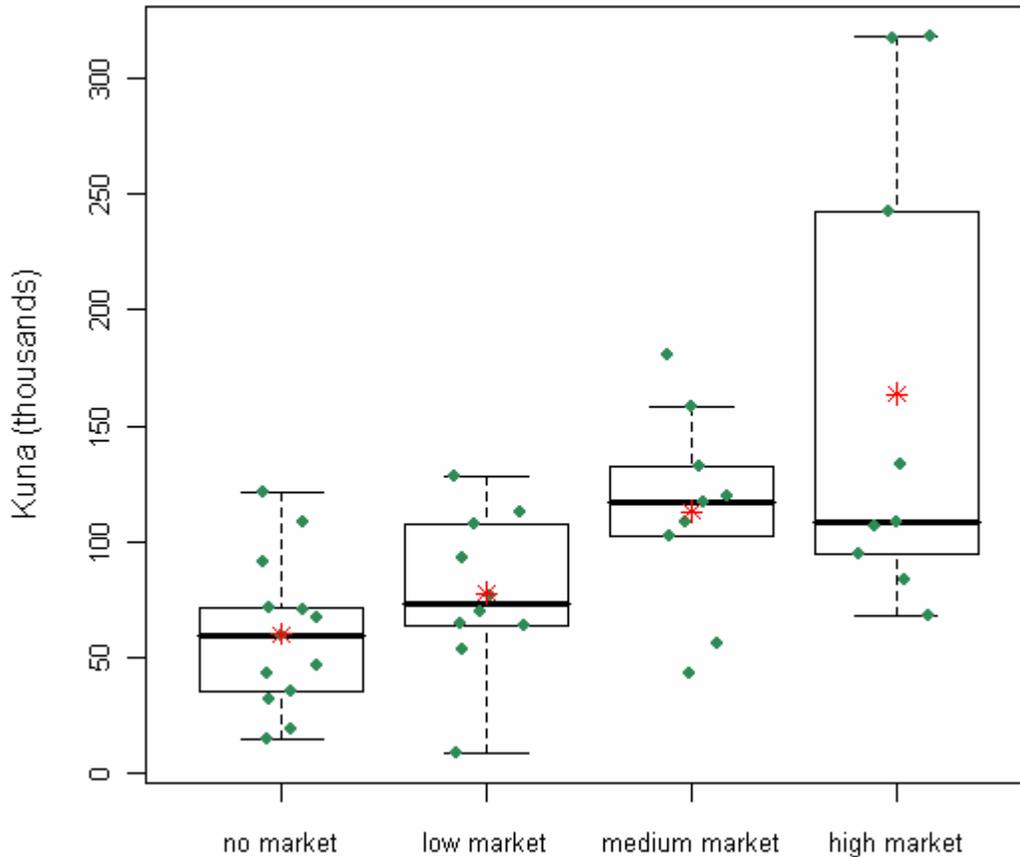
no market	low market	medium market	high market
32960.73	34487.27	41775.80	101823.62

```
#there is some evidence of variance heterogeneity graphically  
boxplot(laura2$total.income/1000~laura2$f1,outline=F,axes=F,  
ylab='Kuna (thousands)')  
axis(1,at=1:4,labels=levels(laura2$f1),cex.axis=.8)
```

```

axis(2,cex.axis=.8)
box()
points(jitter(as.numeric(laura2$f)),laura2$total.income/1000,
col='seagreen',pch=16,cex=.8)
points(1:4,tapply(laura2$total.income,laura2$f,mean)/1000,col=2, cex=1.1,pch=8)

```



The last category is quite a bit more variable than the first three. Unequal variances can contaminate the statistical test for the difference in means. We can account for unequal variances by using an error distribution other than the normal, one in which the variance changes with the mean. Two such distributions are the lognormal and gamma. We fit both error distributions first using ordered categories and secondly using Helmert contrasts.

```

#refit the model using a Gamma error distribution
summary(svyglm(total.income~fo,design=laura.obj,family='Gamma'))

```

Call:

```
svyglm(total.income ~ fo, design = laura.obj, family = "Gamma")
```

Survey design:

```
svydesign(id = ~1, strata = ~hh.code, data = laura2, fpc = ~total.pop)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	1.112e-05	8.505e-07	13.079	8e-15	***
fo.L	-7.978e-06	1.886e-06	-4.230	0.000167	***
fo.Q	5.285e-07	1.701e-06	0.311	0.757929	
fo.C	3.271e-07	1.493e-06	0.219	0.827902	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for Gamma family taken to be 0.2474128)

Number of Fisher Scoring iterations: 5

```
summary(svyglm(total.income~f,design=laura.obj,family='Gamma'))
```

Call:

```
svyglm(total.income ~ f, design = laura.obj, family = "Gamma")
```

Survey design:

```
svydesign(id = ~1, strata = ~hh.code, data = laura2, fpc = ~total.pop)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	1.112e-05	8.505e-07	13.079	8e-15	***
f1	-1.902e-06	1.511e-06	-1.259	0.216726	
f2	-1.970e-06	6.152e-07	-3.202	0.002959	**
f3	-1.672e-06	3.919e-07	-4.265	0.000151	***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for Gamma family taken to be 0.2474128)

Number of Fisher Scoring iterations: 5

The gamma generalized linear model compares the reciprocal means across groups.

Notice that our conclusions are exactly the same as before, except that the differences are now even more significant for the Helmert contrasts. The linear trend is significant (first analysis) and the second and third mean comparisons are statistically significant.

```
#refit the model using a lognormal error distribution
summary(svyglm(log(total.income)~fo,design=laura.obj))
```

```
Call:
svyglm(log(total.income) ~ fo, design = laura.obj)
```

```
Survey design:
svydesign(id = ~1, strata = ~hh.code, data = laura2, fpc = ~total.pop)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	11.32996	0.09288	121.985	< 2e-16 ***
fo.L	0.78258	0.17782	4.401	0.000101 ***
fo.Q	0.02303	0.18576	0.124	0.902074
fo.C	-0.08420	0.19337	-0.435	0.666000

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for gaussian family taken to be 0.4000654)

Number of Fisher Scoring iterations: 2

```
summary(svyglm(log(total.income)~f,design=laura.obj))
```

```
Call:
svyglm(log(total.income) ~ f, design = laura.obj)
```

```
Survey design:
svydesign(id = ~1, strata = ~hh.code, data = laura2, fpc = ~total.pop)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	11.32996	0.09288	121.985	< 2e-16 ***
f1	0.12582	0.14634	0.860	0.39594
f2	0.19626	0.06837	2.871	0.00700 **
f3	0.17255	0.05216	3.308	0.00223 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for gaussian family taken to be 0.4000654)

Number of Fisher Scoring iterations: 2

Here we have fit a normal model to log-transformed responses. The lognormal model compares the mean of the logged incomes across groups. The conclusions, once

again, do not change. Exactly the same differences turn out to be significant as they did for the gamma model and the normal-based model.

Since the survey package does not fit these models using maximum likelihood, we cannot directly compare their fit. If we fit the models outside of survey by using standard regression functions, we can compare the results using information-theoretic tools, although in doing so the survey structure is not accounted for.

```
lm(total.income~f,data=laura2)->out.normal
glm(total.income~f,data=laura2,family='Gamma')->out.gamma
lm(log(total.income)~f,data=laura2)->out.lognormal
```

```
#calculate correct loglikelihood for lognormal model
```

```
norm.loglike<-function(data,var,model)
{
t.y<-log(data[,var])
sigma2<-((sum(residuals(model)^2))/dim(data)[1])
loglike<-sum(log(dnorm(t.y, mean=predict(model), sd=sqrt(sigma2))*1/(data[,var])))
out<-list(loglike, c(coef(model), sigma2))
out
}
norm.loglike(laura2,"total.income",out.lognormal)->out.llnorm
```

```
#obtain AIC values
```

```
AIC.lognormal <- -2*( out.llnorm[[1]])+ 2*( length(coef(out.lognormal))+1)
AIC.gamma<-AIC(out.gamma)
AIC.normal<-AIC(out.normal)
```

```
c(AIC.lognormal,AIC.gamma,AIC.normal)
[1] 1009.266 1003.238 1020.231
```

Lastly, using AIC we would rate the model with gamma errors to be the best, the lognormal second, and the normal-based model last. Since all three models lead to the same substantive conclusions about the households, the choice does not matter.

APPENDIX E

INTENSIFICATION AND LABOR PRODUCTIVITY

Explanation of the statistical analyses for Tables 7.1a and 7.1b

My time and labor allocation schedule was based on visiting 41 households every other week for seven days in a row with observation times starting at 7:15 am and ending at 7:30 pm. The total number of observations was 4,394. By following Clark and Haswell's methodologies (1964:98), and knowing that Sundays were days of rest, my analysis excluded 595 Sunday observations and 76 holiday observations. Furthermore, 171 observations were not included because I did not find anybody at home or those who I did find did not know the current activities of the absent household members. Therefore, the number of observations which were valid for this study is 3,662. After I excluded all the Sundays and holidays, there was 303 workdays included in the calculation.

The numbers presented in the table are the hours that individuals spent in the activities of interest for my studies. In order to calculate the proportion of time household members spent in an activity I totaled the number of observations of each work category over all households of a certain household type and then divided by the total number of observations in that category. Next, I calculated the actual hours worked by multiplying the proportion of time household members were observed engaged in an activity by the number of work days (303) and then by 12 hours per day (the length of my observation period).

It is necessary that I mention two points. First, the individuals younger than 18 and older than 65 were excluded, as they contributed less to the household labor. If these individuals were included, the work hours per year would have dropped, and that drop would have been significant for some household types. Second, I valued women's work the same as men's, contrary to how the majority of the anthropologists have done. In the works presented in Clark and Haswell (1964) and Netting (1993), women's work is expressed as having a value of 75 percent of the men's work. I based my decision on Netting's statement that both sexes do perform, or are equally capable of performing all farming activities.

**Explanation of the labor productivity calculation for Figures and Tables 7.4a
and 7.4b**

From the farmers' household diaries, I calculated the average labor productivity for each household, which I then combined into averages for the four household types. In order to calculate productivity, I first extracted the agricultural inputs and outputs from the non-agricultural inputs and outputs, such as personal needs, bills, loans, and so on. I was only interested in the agricultural input/output flow. Below is an explanation of all inputs and outputs.

Inputs

Agricultural inputs included materials needed in field cultivation, such as *pesticides, fertilizers, and seeds*. They also included *mixed animal feed* which was purchased as well as food produced on the farm. I considered farm-produced food as an output, but the amount that was consumed on the farm was also treated as an input. The portion of the

food produced on the farm that was sold was treated as cash income. Inputs also included costs of *veterinary and other services*. Items such as *tools and gas* were treated as agricultural inputs although some gas and tools were used for non-farming purposes. However, since I was not able to approximate how much gas was used to operate a car, I assumed that most gas was used in agriculture and thus regarded gas as an agricultural input. Furthermore, *land rent* was treated as an agricultural input. Another input that was included in the calculation was *labor*. Since labor input was not registered in the farming diaries, I brought this data in from the time allocation dataset. When services were paid with produce, I calculated them at the value of the produce.

Outputs

Outputs included *food* produced for household consumption and animal feed, food exchanged, and food sold. Since my data set does not distinguish between food consumed by people and animal feed, I was only able to divide food into the following groups: green feed, grain feed, cash crops, and vegetables. Green feed included alfalfa, corn silage, and straw bales, all of which were consumed by or used for animals. Unlike green feed, part of the grain feed was consumed by humans in the form of flour with the remainder being consumed in the form of a meal by animals. Since I was not able to approximate what portion was consumed by whom, I treated it as one item—food consumed. Cash crops include sugar beets, reeds, blackberries, and Christmas trees, all of which were produced and sold. Vegetables were all produced and consumed on the farm. Vegetables and other food purchased are not included in my calculations. All the food that was consumed by either humans or animals went back into the input side of the calculations.

Monetary values of food items

Grains and green fodder prices were calculated based on the prices the farmers sold them to each other. If the price was missing, I used an average price from among all households for those months in which the crop was actually sold,. Since not every household sold each type of crop, I had more data available for some crops than for others to calculate the average. For instance, corn was sold in six different months throughout the year, whereas oats were sold only one month per year. Also, corn was sometimes sold as grain and other times on the cob, depending on the time of year. Right after the harvest and early in the spring, corn was sold on the cob for 0.40 or 0.50 HRK/kg. From summer until the next crop it was mostly sold as grain for 1.5 HRK/kg. The price difference was due to the fact that corn stores as cob for longer periods of time. It is safe to grind larger amounts of corn and store it for a few months only during summers while the weather is dry.

I estimated the price for grass (2kn/kg) as fodder based on the price of hay and alfalfa. Very few farmers tried to grow grass and none sold it, which was why estimation was my only choice. Hay bales were sold for 1 HRK/kg and alfalfa bales for 1.5 HRK/kg. The average weight of bales was 12 kilograms. The price for corn silage (0.9 kn/kg) was based on the estimation of Ivan Martinović for the year 2004. Prices for blackberries (12kn/kg) and Christmas trees (30 HRK/piece) were based on what Marko and Mirko Gašparović reported to me.

Vegetable prices: Since vegetable amounts were expressed in kilograms and liters, I converted the number of liters of frozen and pickled vegetables and jellies into kilograms. I was able to find a conversion ratio online for some items. For instance, 1 liter of beans

is 0.77 kilograms. The source is: http://gpih.ucdavis.edu/files/Weight_vs_volume.xls.

For the rest of the foods, such as tomato juice, jelly, pickled veggies, and frozen peas, I asked my Aunt Ana to weigh the content of her liter jars (Ana Dominković, personal communication: September 20, 2006). She reported the weights as follows:

1 l tomato juice = 1 kg
1 l plum jelly = 0.9 kg
1 l pickled cucumbers = 0.8 kg
1 l frozen peas = 0.6 kg
30 plums (with seeds) = 1 kg
10 kg cabbage = 15 liters of sauerkraut

I used market prices for these food items as reported to me by Marija Dominković (personal communication: September 20, 2006).

1 kg tomato juice = 14 HRK
1 kg jelly = 24 HRK
1 kg frozen peas = 14 HRK
1 kg pickled cucumbers = 15 HRK

In 2004, homemade brandies were sold for 35 HRK/liter and walnuts for 20 HRK/kg in the village.

Values of livestock, buildings, and machinery: In the calculation of animal output, I only included livestock that were sold or consumed that year. Also, animals that were born that year and did not leave the farm, I treated as a replacement fund for those who died. I did not have a record of dead animals. The following are two sources that supported my decisions.

In Pimentel and Pimentel (1996) the machinery entry of 55 kg/ha appears in the energy tables as the energy used to manufacture the machinery in the first place, such as for instance an axe and a hoe as the only tools used in hand-grown corn. The authors'

calculation does not take into consideration that the machinery can be reused in another year. I assumed that in the second year of production the authors would not include the cost of machinery in their tables because it was already paid for in the first year. They apparently elected not to use a depreciation schedule, but instead pay everything off in the first season. As I was unable to approximate the value and depreciation of animals, buildings, and machinery, I decided to apply the Pimentel and Pimentel strategy, assuming that tractors, buildings and so on, were all paid off in the first year of use and hence no longer needed to be accounted for in subsequent years.

Another source that supports my decision is the instruction sheet for filling out tax forms for livestock and farming buildings. The source says that "livestock you raise usually has no depreciable basis because the costs of raising them are deducted and not added to their basis", electronic document, <http://missouribusiness.net/irs/taxmap/pubs/p225-029.htm>. In continuation the instructions state: "you begin to depreciate your property when you place it in service for use in your trade or business or for the production of income. You stop depreciating property either when you have fully recovered your cost or other basis, or when you retire it from service, whichever happens first. This happens when your section 179 and allowed or allowable depreciation deductions equal your cost or investment in the property". Thus, I assumed that all the capital has already been paid for and did not require loans for its acquisition.

Calculations for prices

My calculations of the values of animals and crops consumed ignore the fact that only a part of the slaughtered animal or a crop was consumed and the rest was thrown

away. I decided not to deduct the waste from consumption because farmers pay the price per unit of crop or meat based on the weight of the live animal or harvested crop.

In output, I used the price per unit of animal sold for which farmers sold live animals among themselves or at the local market. If the sold price was missing, I calculated the average monthly prices of sold animals for which I had data. In the case of the slaughtered animals, the only price I had available was the price of sold live animals, because only a few slaughtered animals were sold during my study. The prices of live and slaughtered animals were not significantly different. In case the price of a sold animal was missing and no one sold that animal in that month, I used an annual average, based on all the months in which that animal was sold. There were two such cases: cows and bulls. For chicken, other animals, and wild animals, I used the same selling price of 10 HRK/kg, based on the one case of the sale of a slaughtered bird. All the other animals were less than 5 kg in weight, including wild birds and rabbits.

In the cases where the price per unit was included in the data but the weight was missing, I used the monthly average weight of animals slaughtered or sold respectively. If no animals were slaughtered or sold in that month I took the annual average weight of slaughtered or sold animals. Multiplying the price per kilogram by the weight provides the value of an animal that was sold or consumed. The value of the animals consumed was also used in the input side of the equation.

The milk calculation includes milk sold to the factory and within the community. The price the farmers sell milk among themselves is a bit higher than what they receive from the factory, but it is still lower than the retail price. The milk value does not include

milk consumed at home, or feed to the calves, since I did not collect data on that part of the consumption.

One last output was manure which was never sold in the village. The only way I was able to estimate the price of 1 kg of manure was to look at the price of cow manure as sold in the US. The price at Lowes stores for 22.6 kg manure bag was \$4.68, or the equivalent of HRK per kg is 3.5. Such manure price made the manure the cheapest fertilizer the farmers used. This low price seems justified since manure is produced on the farm and is not processed. Manure is also used on the input side of the equation.

Table 7.3a – Labor productivity of wheat production for a single farmer, 2004

	Amount		Price, HRK	
Input				
Fertilizer ⁷⁸ , kg	790.0		1,275.10	
Seeds, kg	350.0		994.00	
Pesticides, kg	-		166.66	
Gasoline ⁷⁹ , ltr	123,3		412.99	
Labor hours ⁸⁰	21.1		211.40	
Harvest and transportation	-		775.25	
Subsidy	-		1,650.00	
Total input	-		5,485.40	
Output				
	Yield, kg		Price, HRK	
	Grain	Hay	Grain	Hay
	4,800.0	2,833.00	4,800.00	2,833.00 ⁸¹
Total output	-		7,633.00 ⁸²	
Labor productivity			1.39	
Chayanovian labor prod.*			1.45	

* Excludes unpaid family and exchanged labor.

⁷⁸Due to fluctuating prices of fertilizer, the calculations include fertilizer prices in the month of February, knowing that Ivan bought the majority of the fertilizer in February.

⁷⁹Prices of fuel also fluctuated throughout the year 2004 and the calculations are based on an average price for the year.

⁸⁰Farmers who hired labor paid 10 HRK per hour in 2004.

⁸¹Although hay bales varied in size from 8 to 15 kilograms, the average was approximately 10 kilograms. Thus, 283 bales weighted 2,833 kilograms. Since bales were sold at 1 HRK per kilogram, 2,833 kilograms had a value of 2,833 HRK.

⁸²The state was apying 1 HRK per kilogram of wheat. The price is a total values of grain and hay, although only grain was sold.

Table 7.3b – Labor productivity of maize production for a single farmer, 2004

	Amount		Price, HRK	
Input				
Fertilizer, kg	725.0		1,406.25	
Manure, kg	42,000.0		21,000.00	
Seeds, grains	60,000.0		785.71	
Pesticides	-		392.85	
Gasoline, ltr	66.7		223.31	
Labor hours	41.7		416.60	
Subsidy	-		1,250.00	
Total input	-		25,474.72	
Output				
	Yield, kg		Price, HRK	
	Corn cob	Silage	Corn cob	Silage
	12,000.0	30,000.0	6,000.00	27,000.00
Total output	-		33,000.00	
Labor productivity			1.30	
Chayanovian labor prod.			1.32	

Table 7.3c – Labor productivity of alfalfa production for a single farmer, 2004

	Amount	Price, HRK
Input		
Fertilizer, kg	350.0	677.50
Manure, kg	30,000.0	15,000.00
Seeds, kg	-	-
Pesticides	-	40.00
Gasoline, ltr	186.0	623.10
Labor hours	71.2	711.60
Other expenses	-	151.66
Subsidy	-	1,250.00
Total input	-	18,453.86
Output		
Yield, kg	9,080.0	13,620.00
Total output	-	13,620.00
Labor productivity		0.74
Chayanovian labor prod.		0.77

Table 7.3d – Labor productivity of sugar beet production for a single farmer, 2004

	Amount	Price, HRK
Input		
Fertilizer, kg	1,100.0	2,738.00
Manure, kg	40,000.0	20,000.00
Seeds, kg	350.0	916.66
Pesticides	-	2,457.24
Gasoline, ltr	42.5	142.38
Labor hours	45.5	455.00
Agricultural service	-	1,603.33
Subsidy	-	3,000.00
Total input		31,312.61
Output		
Yield, kg	44,530.0	12,023.10
Transport		525.02
Total output		12,548.12
Labor productivity		0.40
Chayanovian labor prod.		0.41

Table 7.3e – Labor productivity of dairy cows production for a single farmer, 2004

	Price
Input	
Mix feed	267.11
Health & other service	988.78
Farm produced feed	8,586.22
Family labor	2,594.44
Subsidy	800.00
Total input	13,236.56
Output	
Milk	9,495.28
Animal sale	3,533.33
Total output	13,028.61
Labor productivity	0.98
Chayanovian labor prod.	1.41

Table 7.6 – Village mean family size, hectares cultivated, number of fields cultivated, and field size by household type

	High market	Medium market	Low market	No market	Village mean
n	55	62	130	261	NA
Family size	4.18 (2.03)	4.42 (1.54)	3.68 (1.98)	3.35 (1.75)	3.65 (NA)
Ha cultivated	11.95 (9.27)	7.57 (4.79)	2.41 (2.25)	0.43 (1.10)	3.05 (NA)
Ha/individual	3.07 (2.11)	1.76 (1.02)	1.10 (1.55)	0.21 (0.65)	0.94 (NA)
Number of fields	6.17 (4.40)	4.55 (2.93)	2.56 (1.58)	2.00 (1.14)	4.00 (NA)
Smallest field ha	0.65 (0.56)	0.64 (0.72)	0.75 (1.28)	0.51 (0.28)	0.67 (NA)
Largest field ha	4.51 (4.22)	3.17 (2.28)	1.57 (0.96)	1.32 (0.97)	2.98 (NA)

Note: The numbers in parentheses represent one standard error of the estimate.

APPENDIX F

GLOSSARY

atar - Engl. tax unit, a taxable area of land that belongs to a village. It includes the village and its surrounding fields.

anjfor -Engl. gate or an entryway into a farming yard. It has a high ceiling and is built under the same roof with the house and connected to a neighboring house. It has a large wooden or metal gate from the street, and toward the inside of the yard is open.

baka or baba - Engl. grandmother, or elderly woman. It refers to elderly women in general or to grandmothers. It is considered impolite to call elderly women or men by their first name only, but usually another word or term is placed in front of the name, like *baka Ana*.

carska rabota - Engl. work obligation of border soldiers.

čardak - Engl. wooden fort built on stilts. The Habsburgs built a chain of *čardaci* along the Sava River, where local guards or *krajišnici* protected the border with the Ottoman Empire. There were two *čardaka* at Štitar, Štitarski Bogaz and Štitar (Mažuran 1993).

dida - Engl. grandfather, a term used when talking with an elderly man or a grandfather.

dola - Engl. hole, or a small indentation in the field.

ganjk - Engl. porch. It is usually built along the inside section of an L-shaped family house. It typically had arched openings and brick floors.

gazda - Engl. household head. His wife is called *gazdarica*.

greben - Engl. ledge, as a small ledge in the field.

Hvaljen Isus i Marija - Engl. "Heil to Jesus and Mary." It is a traditional way of greeting people on the street or as entering someone's house. Today, it is mostly exchanged among elderly people.

Independent State of Croatia (Nezavisna Država Hrvatska, NDH) - a puppet state founded during WWII when the Kingdom of Yugoslavia was invaded by Nazis. It was ruled by Ante Pavelić and the Croatian group of extremists called *Ustaše*. In 1945, Tito and the members of the Communist Party of Yugoslavia defeated the *Ustaše* and took control of the Yugoslavian territory.

leno - Engl. awarded land. Land is awarded to those who settled the Slavonian Military Frontier in exchange for military service for the purposes of the Habsburg Monarchy in Vienna.

kanapet - Engl. daybed, originally a Turkish word. It is usually found in a summer kitchen.

katastarska čestica - Engl. cadastre plot. It is an area of a field, often smaller than the field.

kbr. or kućni broj - Engl. house number. During the Habsburg Monarchy, Štitar did not have street names but only house numbers. It was important to attach a *kbr.* with a name

of the household head since more than one household had the same last name, and the *kbr.* was the only way to precisely mark a household.

kolkhoz - Engl. collective farm.

krajišnik - Engl. inhabitant of the *Slavonian Military Border* or *Vojna krajina*.

kučari - Engl. sleeping quarters. They are located on the longer part of an L-shaped house and have an entry onto a *ganjk*. In the past, they served as bedrooms in which young couples and single young men and women slept. Today they are used as storage or pantries.

kulen – a name for a specific type of a pork sausage, made of ground meat, with added salt, pepper and hot red paprika and then smoked and air dried for a few months.

millet - Turkish term for nation, but different from the Western concept.

Napredak – a name given to a village cooperative.

poljoprivredno dobro - Engl. state-owned agricultural collective, formed during the post-WWII agrarian reforms.

Pravoužitničko pravo - the right to gather a wood supply from the surrounding forests for the needs of a *krajišnik* household. The rule was created by the Habsburgs as a part of a land deal to all who were willing to settle the Military Frontier.

rednja - Engl. rotation of *zadruga* couples who went to the field house every day, or lived there for an agreed period of time, taking care of the animals and/or cultivating fields.

ris –a relationship between a farmer land owner and a landless hired laborer, during which the hired laborer performed all the agricultural activities on certain portion of the farmers' fields, and kept an agreed part of the yield, usually from 1/3 to 1/2.

sokak - Engl. side street, typically parallel to the main street.

Šokac (male), or *Šokica* (female) - a name used by individuals to describe themselves and by others to describe them, denoting their identity as Croatian and native to Slavonia.

teta - Engl. auntie. It is a respectful way of referring to a person that is older than the speaker, similarly to *baka* as stated above.

ušoravanje - a process of lining the villages as enforced by the Monarchy.

Vojna krajina - Engl. Military Frontier.

zadruga, pl. *zadruga* - Engl. family cooperative.

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