

Hülssiep, Marina

Research Report

Governance and Gender Dynamics in Global Value Chains. A Case Study of the Industrial Dairy Value Chain in Matiguás, Nicaragua

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Governance and Gender Dynamics in Global Value Chains. A Case Study of the Industrial Dairy Value Chain in Matiguás, Nicaragua

Marina Hülssiep

Master Thesis

67 FORUM



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A-1090 Wien, Sensengasse 3, Telefon: (+43 1) 317 40 10, Fax: (+43 1) 317 40 10 – 150

e-mail: office@oefse.at, Internet: <http://www.oefse.at>, <http://www.centrum3.at>

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Preface

The Master thesis of Ms Marina Hülssiep with the title “Governance and gender dynamics in global value chains. A case study of the industrial dairy value chain in Matiguás, Nicaragua” takes issue with the phenomenon of global value chains (GVC). Given the large-scale territorial reorganization of production at the global level since the 1970s, which has also importantly included the economies of the Global South, GVC analysis has become an important field of inquiry also in development studies. Ms Hülssiep applies a GVC lens to study an economic sector – the dairy industry – that is of particular importance for the rural economy of many Low-Income Countries, in order to investigate gendered power structures and the role of women in dairy production. Through this approach, she combines GVC analysis with empirical gender studies to shed light on the potentials and limits of economic empowerment of women in a particular region in Nicaragua, a long-standing focus country of Austrian Development Cooperation.

Given the eminent role of gender policies in European and Austrian Development Cooperation, the novel methodological approach applied in this study is both of relevance to a gender-sensitive approach to applied development research, and contributes to enlarging the knowledge base for gender programs and activities in development cooperation in general and Austrian development cooperation in particular.

Werner Raza
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in Matiguás, Nicaragua.“

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Marina Hülssiep, BA Bakk.rer.soc.oec.

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Abstract

This thesis analyzes the interaction of governance and gender within global value chains on the basis of the industrial dairy value chain in Matiguás, Nicaragua. First, it explains the three different dairy value chains existing in this region to then examine the governance structures prevailing in the exporting chain. Second, I am exploring how women are integrated as milk producers into the industrial dairy value chain, and what factors and mechanisms of exclusion exist, to finally combine the findings in an integrative approach to understand the interaction of governance and gender within this value chain. The global value chain theory and the sustainable livelihood approach are applied as tools for the analysis.

The results are based on a case study in central Nicaragua, where cattle farming is one of the most important sources of income. The research focuses on two cooperatives and their corresponding milk providers. Their livelihood activities are influenced through dynamic and mutually constructed relations between household members, intermediaries, cooperatives, and transnational firms. These firms have the most influence in the industrial dairy value chain and therefore, indirectly over the lives of farmers. By running pasteurization plants in the country they act as lead firms; setting quality standards and prices. However, power asymmetries are not only established vertically but also horizontally along various categories, one of them being gender. Gender is the main category along which participation is shaped. Women have been historically excluded from the traditionally male domain of cattle farming, making women's contribution to milk production invisible. To assess their participation, their access to and control over resources, services, financial capital, decision-making power, household dynamics and the perception, treatment and involvement of women in cooperatives, collection centers and the community is analyzed. It is taken into account that equal participation per se is not a determinant factor for gender equality, but the terms to which women participate.

Producers encounter various barriers hindering their participation in the industrial dairy chain, such as access to membership in cooperatives, quality standards, lack of financial capital, geographic location and traditional gender roles. These factors are interlinked through missing information, and are affecting female producers more severely. Improving access to information, especially for women, I therefore consider to have a positive leverage effect on women's livelihoods.

Regarding the interaction of gender dynamics and governance the analysis examines the macro, meso and micro level. It can be concluded that on all levels women are facing unequal access to information, lack of decision-making power and restricted bargaining power putting them in a disadvantaged position in the governance structure of the industrial dairy value chain.

Keywords: governance, gender, global value chain, dairy sector, smallholder farmers

Kurzfassung

Diese Arbeit analysiert die Interaktion von Governance und Gender innerhalb globaler Wertschöpfungsketten anhand der industriellen Milchwertschöpfungskette in Matiguás, Nicaragua. Zuerst wird auf die drei Milchwertschöpfungsketten in dieser Region eingegangen um dann die Governance Strukturen, die in der exportierenden Wertschöpfungskette vorherrschen, zu untersuchen. Als zweites wird sich der Art und Weise, wie Frauen als Milchproduzentinnen eingebunden sind, zugewandt. Es wird hinterfragt, welche Faktoren und Mechanismen der Exklusion existieren um letztendlich die Ergebnisse in einem integrativen Zugang zu kombinieren um die Interaktion von Governance und Gender in der Wertschöpfungskette zu verstehen. Als Analysewerkzeuge werden die Global Value Chain Theorie und der Sustainable Livelihood Zugang verwendet.

Die Ergebnisse basieren auf einer Fallstudie in Zentral-Nicaragua, wo die Viehwirtschaft eine der wichtigsten Einkommensquellen ist. Die Arbeit ist fokussiert auf zwei Kooperativen und ihre Milchlieferant_innen. Deren Livelihood-Aktivitäten werden durch dynamische und sich gegenseitig konstituierende Beziehungen zwischen Haushaltsmitgliedern, Intermediären, Kooperativen und transnationalen Firmen beeinflusst. Diese Firmen sind es auch, die den größten Einfluss innerhalb der industriellen Milchwertschöpfungskette genießen und damit indirekt über das Leben von Produzent_innen entscheiden. Durch das Betreiben von Pasteurisierungsanlagen im Land agieren sie als „Führungsfirmen“ und setzen Qualitätsstandards und Preise fest. Allerdings bestehen diese Machtasymmetrien nicht nur vertikal, sondern auch horizontal entlang verschiedener Kategorien; eine hiervon ist Gender. Gender ist die wichtigste Kategorie, die über die Partizipation in der Wertschöpfungskette bestimmt. Frauen sind historisch betrachtet von der männlich dominierten Viehwirtschaft ausgeschlossen, was dazu führt, dass ihr Beitrag in der Milchproduktion unsichtbar bleibt. Um ihre Rolle einzuschätzen werden die Aspekte Zugang zu und Kontrolle über Ressourcen, Dienstleistungen, finanziellen Kapital, Entscheidungsmacht, Dynamiken im Haushalt und die Wahrnehmung, Behandlung und Beteiligung in Sammelzentren, Kooperativen und den Gemeinden beleuchtet. In dieser Analyse wird berücksichtigt, dass gleiche Teilnahme nicht automatisch mit Gleichberechtigung einhergeht, sondern die Bedingungen, zu denen teilgenommen wird, entscheidend sind.

Produzent_innen sind mit verschiedenen Barrieren konfrontiert, die ihre Partizipation an der industriellen Milchwertschöpfungskette behindern, zum Beispiel der Zugang zur Mitgliedschaft in Kooperativen, Qualitätsstandards, mangelndes finanzielles Kapital, geografische Lage und traditionelle Geschlechterrollen. Ein Aspekt, der alle diese Faktoren beeinflusst und verbindet, ist mangelnde Information und Frauen sind bezüglich aller Faktoren und Mechanismen benachteiligter als Männer. Daher kann die Verbesserung des Zugangs zu Information, besonders für Frauen, einen großen Hebeleffekt auf deren Lebensgrundlagen haben.

Bezüglich der Interaktion von Governance und Gender Dynamiken betrachtet die Analyse die Makro-, Meso- und Mikroebene. Es kann gefolgert werden, dass Frauen über alle Ebenen hinweg über ungleichen Zugang zu Informationen, mangelnde Entscheidungsmacht und eingeschränkte Verhandlungsmacht verfügen, welche sie in eine benachteiligte Position in der Governance Struktur der industriellen Milchwertschöpfungskette verortet.

Schlagwörter: Governance, Gender, Globale Wertschöpfungsketten, Milchsektor, Kleinbauern und -bäuerinnen

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Marina Hülssiep, January 2016

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List of Abbreviations

ADA	Austrian Development Agency
ADDAC	Asociación para la Diversificación y el Desarrollo Agrícola Comunal
BOKU	University of Natural Resources and Life Sciences Vienna
CIAT	International Center for Tropical Agriculture
DR-CAFTA	Central American Free Trade Agreement
FDL	Fondo de Desarrollo Local
FSLN	Frente Sandinista de Liberación Nacional
GCC	Global Commodity Chain
GDP	Gross Domestic Product
ICARDA	International Center for Research in the Dry Areas
ILRI	International Livestock Research Institute
SAP	Structural Adjustment Programs
UNA	Universidad Nacional Agraria
USA	United States of America

PART I. FOUNDATION

Chapter 1: Situating the problem

1.1 Introduction

Agriculture has played an important role in the research for development in recent years. For example, the World Development Report 2008 has named agriculture as a fundamental instrument for sustainable development and poverty reduction. According to The World Bank (2007, pp. 1, 10) it is crucial to improve the productivity, profitability, and sustainability of smallholder farmers so that agriculture can lead to “development”. However, the nature of the economic processes and organization of the value chain determine to a great measure the prospect for poverty reduction through agriculture. Depending on how these processes are structured, they can either worsen or alleviate poverty (Bolwig, Ponte, Du Toit, Riisgaard, & Halberg, 2010, p. 173). To analyze the potential of agricultural value chains, the governance of the value chain has to be understood. The governance structure can be defined along three factors: the distributions of both added value and negotiation power along the chain as well as how and by whom actors are excluded. Various categories responsible for shaping exclusion exist, such as race, class, body, or gender. This research focuses on gender and asks how gender shapes the governance of value chains and how the governance is shaped by gender.

As an example, to illustrate this, the dairy value chain in Nicaragua is chosen. The dairy sector, and with it cattle farming, is historically a deeply masculine space. Few women officially participate as producers. To understand how women are integrated in the dairy value chain as milk producers, the case study analyzes the livelihoods of female members and non-members selling milk to the collection centers of two cooperatives. Gender dynamics, shaping the access to and control over resources and services as well as decision-making processes, are analyzed and put in context of the governance structure of the chain.

As a framework for this analysis, the global value chain theory is combined with the actors-centered, sustainable livelihood approach. Before explaining their most important aspects for the case study, an introduction of the role of milk as a global commodity and specifically for Nicaragua is given, followed by the research questions and context. The first part of the research concludes with an overview of the applied methods and the used methodology.

In the second part, the three different dairy value chains that can be identified in the case study area are explained, and how and by whom they are governed are elaborated. In chapter 5 the absence or presence of women in the researched dairy value chain and their levels of participation are addressed. Chapter 6 defines the determinants of exclusion and combines the findings of the governance structure and the role of women in milk production to analyze how governance and gender dynamics interact.

1.2 Background

Milk is a globalized commodity; it has become an important part of the global food system and “plays a key role in the sustainability of rural areas in particular” (IDF, 2013, p. 1). However, the current trend points in the direction of an increased displacement of small-scale farming structures and a growing dependency on dairy imports by many countries (Höhmman-Hempler, 2000, p. 65). A few regions that provide these dairy imports dominate the global milk market: Argentina, Australia, the European Union, New Zealand, and the United States (US). These are the main players delivering to milk-deficit countries such as Algeria, Brazil, China, Indonesia, Japan, Mexico, the Philippines, and Russia (FAO, 2010, p. 17; FAO Trade and Markets Division, 2015, p. 2). Over the past years, demand for dairy products, mainly milk powder, cheese, and fluid milk, from these milk-deficit countries, except China, has risen. While in the past this increasing demand for dairy imports was due to population growth, now, rising per capita milk consumption caused by changing consumption patterns is the main driver (FAO, 2010, p. 17). For example, today in China milk is associated with modernity, economic progress, and wealth. Differing milk consumption patterns continue to exist; however, federal governments as well as local and multinational dairy industries throughout the world work to increase milk consumption (Interview President NICACENTRO, 2015; Wiley, 2007, pp. 674, 671).

Nevertheless, current growth prognoses have been restrained. The international milk price collapsed in 2015 because the worldwide milk supply exceeded the demand. The underlying causes were the lifting of production quotas by the European Union in 2015, the decreasing milk consumption in China in the same year due to the decreasing demand and rising domestic production, the ban on imports of dairy products to Russia, and the strength of the US-Dollar (FAO Trade and Markets Division, 2015, p. 2; USDA, 2015, p. 1).

The fall of prices has reached Central America as well. Imports of cheap milk powder have increased, for example, in Nicaragua, one of the largest dairy exporters in Central America. And this situation is projected to worsen; after January 2016, milk can be exported from the US to Central America with a reduced tariff, a consequence of the Central American Free Trade Agreement (DR-CAFTA) that will decrease continuously until it is abolished in 2025 (CentralAmericaData.com, 2015a, 2015b). In addition, transnational firms have spread in Nicaragua; now the few firms that are allowed and able to export dairy products all belong to transnational enterprises. Thus, Nicaragua is one example of the current trend in the international milk market; transnational enterprises have taken advantage of the increased liberalization and trade agreements and have entered a cutthroat competition with local firms (Höhmnn-Hempler, 2000, p. 65).

For the Nicaraguan economy, dairy and beef products play an important role: They make up more than one fourth (27.9 percent) of all exports (Lamberg, 2010, p. 162). While other commodities, such as coffee, are almost solely produced for export, the dairy sector delivers to both national and international markets. This points to a division within the dairy industry: the traditional sector, producing for the local and national markets, and the modern sector, producing for export. These two are closely connected because the increased integration of the modern sector into international trade has a feedback effect on the traditional sector and, thus, shapes the economic structure (ibid., p. 151).

Nicaragua's economy is focused on the production of raw materials at a primary processing level; leading to an asymmetric integration into the world market, this makes the country vulnerable to price fluctuations in international markets (ibid., p. 169). Looking at the Gross Domestic Product (GDP), the production of agricultural products, which are mainly unprocessed, amount to approximately 20 percent (ibid., p. 159; Perez, 2011, p. no page number). Most people are working in the primary sector, which comprises several industries ranging from fishing to cattle farming. Approximately two thirds of rural employment is associated with dairy and beef production (Holmann, 2014, p. 1). Thus, cattle farming, organized in a dual-purpose system¹, makes up a principal economic activity for the rural population. However, being a cattle farmer does not mean that one is not subjected to poverty.

¹ In this dual-purpose system, income is created through the sale of milk from cows that are milked with the calves close by and the sale of weaned male calves and other cows.

Smallholder farmers and landless workers in rural areas are among those most exposed to poverty. Furthermore, the most vulnerable demographics are households headed by women or young people under 15 years of age (IFAD, 2015).

Poverty is a nationwide problem in Nicaragua. With a GDP per capita in purchasing power parities of 4,918.30 US-Dollar in 2014 (Austria: 46,222,50 US-Dollar), Nicaragua is the second poorest country in Central America and the Caribbean (The World Bank, 2015a). The population living in rural areas (about 2.5 million people out of approximately six million) is most affected by poverty (The World Bank, 2015b). In 2009, approximately 26.8 percent of the urban population lived below the poverty line, in comparison to 63.3 percent of the rural population (IFAD, 2015). To combat rural poverty, the last three Nicaraguan governments emphasized the potential of dairy farming as one of the most important sources of income; hence this industry is concentrated in five out of eight departments² with the highest incidence of poverty (Polvorosa Narváez, 2013, pp. 5-6). There is a gap, however, between the perceptions and beliefs (of governments) and the empirical knowledge about the potential of dairy farming to reduce poverty. “Little is known about how exactly markets for this high value agricultural produce exactly work and under which conditions farmers are allowed to take part in and the degree they stand to benefit from them.” (ibid. , p. 8)

1.3 Research Objectives and Research Questions

The benefit of dairy farming for livelihood depends, among other factors, on the access to high value-adding agricultural chains, in which the best price for milk can be achieved. However, the access to this chain is constrained by various factors. Literature names the geographic location, hygienic milking practices, and infrastructure as the most important ones. These factors definitely influence the participation in the different value chains, but one important factor is often neglected in research: gender. Gender can present itself not only as an inhibiting factor regarding participation in the chain; it shapes most of the named inhibiting factors as well. Further, it influences production, selling, and processing, in short, the whole value chain. However, little research exists that investigates how gender shapes value chains³ and even less

² The highest incidence of poverty can be found in the departments of Boaco, Matagalpa (to which Matiguás belongs), Jinotega, Nueva Segovia, Madriz, RAAS, RAAN and Rio San Juan (ibid. , p. 87). The ones with dairy farming are RAAS, RAAN, Rio San Juan, Matagalpa and Boaco.

³ For example, case studies addressing gender and value chains were done by Barrientos, Dolan, and Tallontire (2003) for the horticultural sector, for onion value chains by Jeckoniah, Mdoe, and Nombo (2013) and for various agricultural chains by Quisumbing et al. (2015).

on the role of gender in the dairy value chain⁴. Therefore the thesis' objective is to understand how gender dynamics influence the dairy value chain. These gender dynamics are linked to the governance of the chain. Looking at governance structures, one can identify who is in control of what: by whom, when, and how something is produced. Gender influences all of these aspects while being simultaneously influenced by the governance structure. Gender and governance are an interacting system. This interaction and interwovenness is the focus regarding the dairy value chain, and thus the guiding research question is the following:

How do gender dynamics and the governance system of the dairy value chain interact, and what mechanisms shape women's inclusion and exclusion into the dairy value chain in Matiguás?

Gender dynamics and governance systems can be looked upon at different angles. Therefore, subquestions are posed to develop a more specific approach in order to answer the main research questions. These subquestions focus on governance structures, the involvement and participation of women as milk producers, and their role and participation in the two cooperatives active in the case study site. If and what the two cooperatives do to include women and raise gender awareness are particularly addressed in the research. Further, it is asked how gender in combination with governance shape negotiation processes as well as access to, control of, and decision-making power over resources, inputs, and information. The four subquestions are posed:

- 1. What governance structures can be identified within the dairy value chain in Matiguás?*
- 2. How are women as milk producers integrated into the dairy value chain in Matiguás?*
- 3. How do gender dynamics shape the following: access to and control of resources, decision-making power, and relationships to other actors in the dairy value chain?*
- 4. What kind of gender-responsive mechanisms have been established by the cooperatives "Flor de Pancasán" and "Nicacentro", and how have they questioned the traditional gender roles in the dairy value chain?*

⁴ Next to the interviewed Selmira Flores (2011, 2015), who researched about the interaction of gender and the dairy value chain in Nicaragua, another example regarding this topic is a case study about Bangladesh by Waithanji (2013).

All questions refer to the situation in Matiguás, a region in Central Nicaragua, which is described in greater detail in chapter 4.1. Matiguás is chosen because it is one of the most important milk production regions in Nicaragua and it is highly integrated into the exporting dairy sector. Through this integration, Matiguás is facing expanding agricultural production to satisfy international demands, which intensifies conflicts over resources and environmental degradation (Köngeter, 2015, p. 89). Further, the necessary support by dairy cooperatives in this region could be assured, partly because of the previous collaboration with the Livestock and Fish Research Program in which the research is embedded.

1.4 The Research Context

The research was conducted with help of the Livestock and Fish Research Program of CGIAR. CGIAR is a global partnership addressing agricultural research for development that works together with 15 independent, non-profit research centers worldwide (CGIAR, 2015a). The Livestock and Fish Program is one of 16 research programs that are carried out by four partners: the International Livestock Research Institute (ILRI); WorldFish; the International Center for Tropical Agriculture (CIAT); and the International Center for Research in the Dry Areas (ICARDA) (CGIAR, 2015b). The Livestock and Fish Program is funding activities in nine different countries, Nicaragua being one of them. The focus of the whole program lies on value chains, ranging from national meat, to milk, to fish value chains, “that were judged to have high potential for transformational improvement – from the producer to the consumer” (CGIAR, 2015c). In the case of Nicaragua the focus is put on dairy value chains. One project within the Livestock and Fish Program in Nicaragua is “Increasing the productivity of dual purpose cattle in Nicaragua through use of appropriate breed types and application of best husbandry practices”, on which the CIAT, the ILRI, and the Universidad Nacional Agraria (UNA) work. The project, which has been running since 2013, is funded by the Austrian Development Agency (ADA) and collaborates with the Center for Development Research of the University of Natural Resources and Life Sciences Vienna (BOKU), through which the contact with the CIAT in Managua was established (BOKU, 2015). My field research was supported by the CIAT, who helped to establish contacts to key people, provided the necessary infrastructure, and allowed for organizational and personal assistance. Necessary expenses were borne by the ADA-project.

1.5 Justification

Working with a research organization does not only have advantages when carrying out international field research, but does also influence the research in certain ways. In my case, the CIAT helped me by establishing contacts with key actors and providing personnel support, while my research remained, for the most part, independent. The selection of the research topic, the implementation, and data analysis are done autonomously, and input from CIAT was provided only on request as the research was mainly performed to satisfy my own interests. However, when introducing myself in the field, being from an international research organization might have influenced peoples' perceptions, actions, and answers. As most people were not familiar with the organization, I expect this effect to be small.

Naturally, working with an organization is not the only factor that influences the research, but also my background, social class, gender, and nationality have shaped the process of research and understanding of the research topic. Research is an interactive process and being a white, middle-class woman from the global north doing research in a foreign context in the global south has influenced the results (Dannecker & Englert, 2014, p. 14).

Another aspect influencing the research are power structures. They are not only under investigation in the research but also shaped it. Asymmetric power relations between a researcher of the global north and an interviewee from the global south are often inherent in social research (Englert & Dannecker, 2014, p. 241). Through showing respect for the people I worked with and seeing them as experts of their own lives, I try to attenuate this problem. Before every interview, the duration and purpose of the interview and of the research topic were explained, and consent was requested of all interview partners. A further aspect is reciprocity, meaning to share and discuss the gathered information and preliminary results with the research participants.

My goal is to understand, not to explain, governance and gender dynamics, thus I reject a positivistic understanding of research. It is not the aim to find cause-effect relationships, but the understanding is empathized as a prerequisite for explaining. Further, the reflectivity and positioning of the researcher is seen as a crucial component of research, admitting that there is no stable and unchangeable reality where objectivity is the main principle of research. As long as the subjectivity of the researcher is reflected and awareness about the complexity and constant presence of power structure is developed, subjectivity is not considered a "problem"

according to handbooks about methods in the area of development studies (Dannecker & Englert, 2014, pp. 9, 13).

Transdisciplinarity is the guiding scientific principle in this research. “Transdisciplinarity relates to complete integration of two or more disciplines with the possibility of forming a new discipline” (Sumner & Tribe, 2007, p. 4). “Development” itself is seen as a transdisciplinary subject that cannot be analyzed and understood from the perspective of one discipline (Dannecker & Englert, 2014, p. 8). In this case, influences from sociology, anthropology, economics, and agricultural science are just a few of the scientific disciplines that shaped the research process; hence, the goal of research is not to analyze the research questions from the perspective of one discipline but to find an integrative approach.

Unequal power relations are constantly reinforced, through language, among other elements. Therefore, I refrain from terminologies such as “third world countries”, “developing countries”, or “industrialized countries” and use instead terms such as “global south” and “global north” due to a lack of a better alternative.

Chapter 2: Concepts, Frameworks and Key Debates

In order to provide answers to the proposed research questions, the starting point and structure of the analysis is the global value chain approach and the sustainable livelihood approach. The global value chain approach provides a tool with which to analyze the different dimensions of a value chain and helps in identifying governance structures. With the sustainable livelihood approach, the context in which rural people live, the assets they have access to, and their capacities can be better understood. As gender dynamics are one of the main foci of the research, an introduction to the gender debate is given initially, followed by the most relevant aspects of the global value chain approach and the sustainable livelihood approach.

2.1 Gender

Gender is a key principle structuring (western) societies and is constitutively inherent in institutions. It shapes our actions, our beliefs, our desires; it is inherent in everything we do, feel, and want. It is so inherent that most of the time we do not question it and take it as natural – but it is not. To understand that it is not something natural, something “we are born with”, we have to take a step back to unveil the process of its production. This is not an easy task,

since our understanding of ourselves and the world is based on our produced gender identity. However, it is important to acknowledge that gender is constantly produced and reproduced. The ascription to one gender is not something fixed; it has to be interactively produced. For this process of production one uses symbolic clues such as names, clothes, or voice. For example, through realizing certain tasks, gender is being produced; thus the gender-based division of labor is not the consequence, but can be considered as one origin of gender differences (Meissner, 2008, pp. 9, 11).

Gender describes the socially constructed gender identity or gender role and cannot be causally derived from the biological sex. The roles that are ascribed to the different sexes depend on the societal-cultural context and are not fixed – they are changeable (ibid., p. 3).

Gender analysis does not mean only to speak of women (Momsen, 2010, p. 2). However, women are one part of a gender analysis, and when talking about women one has to be careful not to imply that women are a homogenous group having in common the suffered oppression by men and to position western women as a standard. Neither all women, nor all men involved in cattle farming can be considered to have the same living realities. To see them as a homogenous group is not the purpose; however, the research created a division of producers into the two categories “male producers” and “female producers”. This distinction might have further reinforced a gender binary instead of disintegrating it. As a researcher I am aware of this bias, however, in the local context this approach seemed best. Further, gender is not seen as an exclusive principle causing inequalities. Often, it is assumed to be the main principle in history that organizes societies, and “male privilege is the ultimate manifestation” (Oyěwùmí, 2005, p. 99). However, gender was not and is not the only category structuring the society. Race, body, and class are further lines of differentiation, although this list is not exhaustive and will never be because every local context is different; and thus diverse categories prevail with distinctive relevance. The creation of these categories happens simultaneously, and is not an “add-on” to gender (Degele & Winker, 2007). The analysis of inequalities arising in the dairy value chain shall not follow a reductionist approach; nevertheless, gender is the focus and the living realities of female producers are the starting point of understanding unequal access to the chain.

2.1.1 Gender in value chain studies

Cattle farming has been, and still is, a field dominated by men. Women's participation and contribution are often invisible. However, women play an important role and not only in the production processes. The actors' gender shapes the modality to which they are being integrated. "El género, que subyace a la práctica, es un intangible que influye directamente en la manera como las diferentes funciones de la cadena son desempeñadas."⁵ (Flores et al., 2011, p. 28) Not only does gender influence production but all social interactions, which again influence the value chain. Thus, value chain research with the inclusion of a gender perspective should look at all interactions and processes. Every actor is not only an economic agent, but also a social one and has learnt to "be" and "behave" regarding the norms established in society and culture. "Género en cadenas de valor no debe limitarse a las actividades relacionadas estrictamente con la cadena y con su entorno directo, sino que debe ampliarse a las dinámicas y a las relaciones de los miembros del hogar."⁶ (ibid., p. 31) It goes beyond to describe what men and women do. It is more than "to add women and stir" (Habermann, 2010, p. 169). It asks what role the factor gender has regarding the access to the chain and production factors and how gender shapes interactions. Thus, it looks at how gender inhibits the development of actors and the whole chain. It does not ask if women participate; it asks how they participate and what barriers they encounter. At the same time, it does not focus only on women:

Any study of women and development, of the effects of education, lower fertility rates, changing production, etc. on women's position or on their status, cannot start from the viewpoint that the problem is women, but rather men and women, and more specifically the socially constituted relations between them. (Whitehead, 2006, p. 1)

To understand gender inequalities one has to understand the different expressions of masculinity as well; gender research does not mean to exclusively look at women and how they can be empowered (ibid., p. 30). Further, empowerment should not only look at how many women are involved in the dairy value chain, but how they are involved: It should not be essential for women to be as "manly" as possible to be able to participate in the masculine dominated sphere of cattle farming. Further, a better inclusion of women in the chain to equal

⁵ "Gender, as an underlying practice, is an intangible that directly affects how the different chain functions are performed" (Flores et al., 2011, p. 28, own translation).

⁶ "Gender in value chains should not be limited to activities related strictly to the chain and its direct environment, but must be extended to the dynamics and relationships of household members (Flores et al., 2011, p. 31, own translation).

terms should not have the goal to maximize utility. Development does not mean to increase production. It is a social process that abolishes unfreedom and expands the individual freedom (Sen, 2011).

2.2 Value Chain Concepts

The global value chain framework consists of various streams. It is not a closed theory but rather an open framework trying to explain complex interactions, with every stream focusing on slightly different aspects. Hereafter, the concept of global value chains, developed mainly by Gary Gereffi, and a framework on agricultural value chains, developed by Jacques Trienekens, are elaborated. Further, a self-derived definition is evolved enhancing the restricted definition of Kaplinsky and Morris (2001, p. 4), who describe value chains as

the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use. (ibid., p. 4)

The description and the word “chain” imply a purely vertical relationship – leaving out horizontal relationships and upstream and downstream flows of not only material resources but also finance, knowledge, and information, which are characterized through power relations (Bolwig et al., 2010). Therefore, the cited definition will be extended, and a value chain will be understood in this thesis as *a strategic network of horizontally and vertically related actors that produce, transform and bring goods and services to end-consumers through a range of value-adding activities. The actors operate within an institutional environment shaped by power structures, and social reproduction of human labor power is a critical input in this process.* This much broader concept goes back to influences of the world-system theory, the global value chain approach, as well as Trienekens approach, which will all be explained hereafter.

2.2.1 The Global Value Chain Approach

The global value chain approach “highlight[s] the ways in which new patterns of international trade, production, and employment shape prospects for development and competitiveness“

(Gereffi, 2014, p. 434). It has been mainly developed by Gereffi and Korzeniewicz in the 1990s under the term “global commodity chain” (GCC) approach, after industrial enterprises with no actual production, such as Apple or Nike, sprouted (Fischer, Reiner, & Staritz, 2010, p. 9). Inspiration for this concept came from the world system theory, in which Wallerstein and Hopkins mentioned “commodity chains” for the first time. Both streams agree that the concept can be used to analyze the international division of labor in the capitalist production system (Bair, 2005, pp. 155-156).

The objective of the global value chain analysis is to understand how and by whom value is created and distributed along a value chain and what upgrading opportunities result, thus improving national development. Its focus lies on analyzing the governance system and understanding how value chains are organized. For this, its center of analysis is the meso level and the approach tries to identify chain drivers, referred to as leading firms (Bair, 2005, p. 157; Dijk & Trienekens, 2012, p. 1; Trienekens, 2011, p. 57).

These leading firms establish their position through asymmetric power relations. To understand these relations governance structures, have to be studied. Governance is described by Bolwig et al. (2010, p. 176) as “the process of exercising control along the chain through the specification of what type of product needs to be supplied, by whom, in what quantity and when, how it should be produced, and at what price“. Governance refers not only to the power to control but also to the determination of rules about “how the game is played” and can be exercised in various forms (Dijk & Trienekens, 2012, p. 19; Kaplinsky & Morris, 2001, p. 29). In the case of value chains, it can be achieved either through “ensuring consequences along the chain” or through “actively managing or coordinating operations of the links within the chain to ensure that these consequences are being met” (ibid., p. 29). Kaplinsky and Morris (2001) describe three different exertions following the concept of governance in civil society: legislative, judicial, and executive. Legislative governance refers to setting the basic rules for participating in the chain, meaning to set parameters that govern the chain. Judicial governance involves monitoring the performance of firms to fulfill the established standard. Executive governance means proactive governing: For example, assisting value chain actors in meeting the rules, either directly or indirectly through third parties. The effectiveness of governance can be seen through the capacity to implement sanctions. The most radical, negative sanction would be an exclusion of the actor, but positive sanctions can be enforced as well (ibid., pp. 30-31).

Lead firms can implement these sanctions depending on their reach of control. A concept to identify the various manifestations of control and the reach of lead firms was developed by Gereffi, Humphrey, and Sturgeon (2005). They describe five governance types that are depicted in Figure 1.

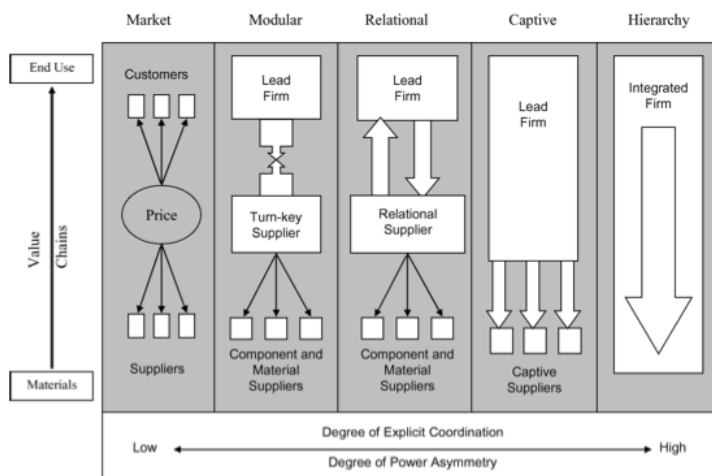


Figure 1. Governance types of the global value chain approach

Source: (Gereffi et al., 2005, p. 89)

In *market governance-structures* partners can be easily switched to low costs since the complexity is very low and the price is the ruling determinant. In *modular governance-structures* components are being produced independently and delivered to various buyers, thus dependencies and power asymmetries are low. In *captive governance-structures* lead firms dominate over suppliers who have rather low technical know-how and depend on the lead firm. This governance structure is predominant in countries of the global south. In *relational governance-structures* the supplier possesses a high level of expertise, which is complementary to the one of a lead firm, creating reciprocal dependencies and relatively symmetric power relations. Spatial proximity is often an advantage for this type. In *hierarchical governance-structures* vertical integration plays an important role. Headquarters dominate over subsidiaries and exert their managerial control (Fischer et al., 2010, pp. 13-14; Gereffi et al., 2005, pp. 83-84). The type of governance structure is determined through three key elements: “(1) complexity of inter-firm transactions; (2) the degree to which this complexity can be mitigated through codification; and (3) the extent to which suppliers have the necessary capabilities to

meet the buyers' requirements" (ibid., p. 87). The according distinctions of these types can be seen in table 1.

Table 1. Key determinants of global value chain governance

Governance type	Complexity of transactions	Ability to codify transactions	Capabilities in the supply-base	Degree of explicit coordination and power asymmetry
Market	Low	High	High	Low
Modular	High	High	High	
Relational	High	Low	High	
Captive	High	High	Low	
Hierarchy	High	Low	Low	High

There are eight possible combinations of the three variables. Five of them generate global value chain types. The combination of low complexity of transactions and low ability to codify is unlikely to occur. This excludes two combinations. Further, if the complexity of the transaction is low and the ability to codify is high, then low supplier capability would lead to exclusion from the value chain. While this is an important outcome, it does not generate a governance type *per se*.

Source: (Gereffi et al., 2005, p. 87)

A single chain can comprise more than one form of governance, because in different segments actors might be exercising different power positions. Thus, it can be distinguished between the overall form of governance and forms of coordination (Bolwig et al., 2010, p. 176).

2.2.2 Agricultural Value Chains in countries of the global south

Value chain governance is an important component of most value chain research. In Trienekens' framework (2011) it is one of three main foci. Trienekens brings together the GVC approach, supply chain management, new institutional economics, and the network approach to develop a framework, following Ruben et al. (2007)⁷, with three key elements: network structure, governance form, and value addition.

In the *network structure* the identification of horizontal and vertical relationships between actors, including the market outlet (local, regional, international), are the main foci. Companies are seen embedded "in a complex of horizontal, vertical and business support relationships with other companies and other organizations supporting inputs and services (such as advisory services, credit facilitators and transportation companies)" (Trienekens, 2011, p. 59). Trust,

⁷ Ruben R., M. van Boekel, A. van Tilburg, and J. Trienekens (eds.). 2007. *Governance for Quality in Tropical Food Chains*, 309. The Netherlands: Wageningen Academic Publishers.

reputation, and power are key determinants of relationships and structures. The vertical relationships of a value chain are structured through market channels, which connect producers to markets. The horizontal ones are defined through purchasing, production, and delivery dependencies, for example, through cooperatives or collaborative agreements between small and medium processors. Through communication of knowledge, market access, market information, exchange of information, and control of quality standards might be improved (ibid., p. 62).

The next focus is how and where *value is added* in the chain. Value can be added at all stages of the chain and by all kinds of actors. It is mostly related to quality, costs, delivery times, delivery flexibility, and innovativeness. Chances to add value can be created through a good market information system of product and process requirements, through specific market characteristics (size and diversity), and through technological capabilities of the actors. Value-adding in the food sector usually takes place through improving the safety, the durability or the quality of a product. Quality is linked to intrinsic characteristics of the product itself such as freshness and taste. Extrinsic characteristics refer to the process, for example, organic or fair trade production. Quality standards have to be met more and more, especially in countries of the global south that intend to export products. This development often presents barriers for small and medium size producers to entry markets (ibid., pp. 63-64).

The third focus is the *governance form*, which Trienekens describes as the governance and bargaining position of value chain actors and the related distribution of value added. Determinants and structures of governance of the global value chain approach, which have been elaborated above, are applied (ibid., p. 65).

The concept of upgrading

The upgrading process central to global value chain analysis is seen as a possibility to improve one's position and increase benefits. In accordance with the foci of the agricultural value chain framework, the following three categories for upgrading can be described; however, a strict subdivision is not possible and the transition is often fluent (ibid., p. 68):

- *upgrading of value-added production*: through innovative products, product differentiation, innovative processes, or innovative marketing activities
- *value chain-network upgrading*: reaching for the right market and being part of the right market channel
- *upgrading of governance form*: choosing the right organizational form with horizontal and vertical value chain partners

Most of the literature uses the typology of the GVC approach that subdivides value-added production into the following (Fischer et al., 2010, p. 14; Humphrey & Schmitz, 2002, p. 1020; Trienekens, 2011, p. 68):

- *process upgrading*: transforming inputs into outputs more efficiently by reorganizing the production system or introducing new technologies (for example, cooling facilities in the case of the dairy value chain)
- *product upgrading*: moving into more sophisticated product lines (for example, high-quality cheese)
- *functional upgrading*: acquiring new functions to increase the overall skills
- *inter-sectoral upgrading*: actors introduce value-adding processes from other sectors to extend their products or services (for example, a farmer offers tourism activities).

These forms can be allocated to the category “upgrading through value added production”. Product and process upgrading prevail in value chains originating in the global south.

Networking upgrading takes place in horizontal and vertical relationships. Through joint purchases (for example, production facilities), collaboration, and communication on a horizontal level, producers can often be improved by forming a cooperative. On a vertical level, choosing the right market channel in the optimal market can afford an upgrade opportunity. Differentiating market outlets is important, in this regard, to decrease dependencies. However, this is not always easy to accomplish, especially for small producers (Trienekens, 2011, pp. 70-71).

In addition to upgrading through improving the network structure, collaboration is key for the *upgrading of governance structures*. An increase of market power leads to a better position

within a chain and more bargaining power and may foster an improved flow of products and information (ibid., p. 71).

In short, upgrading in value chains in the global south comprises the following closely related options (ibid., p. 72):

- Enter markets that are willing to pay for (additional) value added
- Innovation in products, marketing activities, and processes
- Vertical and horizontal arrangements that enable capture of (additional) value added.

Constraints of value chain development

Producers often face constraints that hinder upgrading or fair integration into a value chain. These restrictions are mostly related to three aspects: first, market access (local, regional, or international) and market orientation, second, available resources and physical infrastructure, and third, institutions (ibid., p. 53).

Technological capabilities, available infrastructure, bargaining power, and market knowledge and orientation decide to which markets a producer has access. Market information and orientation are particularly important; without a profound knowledge of the market, a producer is less likely to be capable of adapting his or her/their production to market needs thus filling niche markets, increasing its sales, or attaining better prices (ibid., p. 55).

Further constraints are missing resources and the lack of (physical) infrastructure. Difficult access to or lack of availability of technology, inputs (like fodder, water, or electricity), or credit and external services often constrain the development of value chains in the global south. The geographic position can also hinder access to markets and the integration into a value chain; for example, mountainous or very remote areas present a problem of this regard in Nicaragua. Not only do material resources or physical infrastructure play an important role – missing knowledge of production, distribution, and marketing limit possibilities as well (ibid., p. 55).

The third constraining dimension, institutional voids, refers to situations in which institutions that foster markets and lower transaction costs are absent. Institutions not only comprise legislation and governmental policies, but also normative institutions (for example, business

practices, ethical standards) and cognitive institutions (the way people interpret and assess/evaluate things). All these levels can facilitate as well as obstruct innovations. Especially on the governmental level, standards and regulations, set by Western retailers and industries, influence the situation (negatively) of producers in the global south (ibid., p. 56).

2.2.3 Restrictions of the global value chain frameworks

The global value chain framework is the most commonly used concept to analyze value chains. Although it presents a good tool to look at the different aspects of a value chain, the framework and the research working with the framework exhibit some shortcomings. Gender has been neglected in global value chain analysis, except in the horticultural sector. Labor is seen as a productive asset but seldom as more than that. Rising productivity is the goal, but the benefit for the producer and its effects are not questioned. Lead firms are the center of attention, thus poor actors (farmers, intermediaries) are often neglected. If they are included in research, integration into value chains is often seen as a chance for improvement – risks and vulnerabilities resulting from integration are left out (Bolwig et al., 2010, p. 174).

In the common literature, upgrading is often seen as a throughout positive process for producers and is seldom critically scrutinized. However, upgrading and “development” are not necessarily mutually interlinked. For example, in the case of functional or intra-chain upgrading, suppliers often take over additional responsibilities. Commonly seen, suppliers thereby “add value” – a positive development. Another viewpoint is that less lucrative activities are imposed onto more vulnerable firms, and more stability and profitability are not always the consequence of this upgrading process. It has to be asked as well, who is benefitting from the process of upgrading, as profits are not ultimately delivered to workers in form of higher wages (Bair, 2005, p. 166). Hence, the concept is not applied in research unquestioned.

Global value chains focus on lead firms, suppliers, and clusters. Thus, the research stays on a meso level (Dijk & Trienekens, 2012, p. 13). What has been missing in most published literature regarding value chain analysis is the micro level, where small-scale producers and their livelihoods are the center of attention. Hence, the global value chain approach is combined with the livelihood approach to add an actors-oriented perspective. The livelihood approach, explained in the following segment, is based on the works of Chambers and Conway (1991), Scoones (1998) and Haans (2012).

2.3 The sustainable livelihood approach

“A livelihood comprises people, their capabilities and their means of living, including food, income and assets. The assets are divided into tangible ones, being resources and stores, or intangible ones, being claims and access.” (Chambers & Conway, 1991, p. i) The livelihood approach is people-centered and emphasizes the inherent capacities of rural and urban public focused on a community level (Tao & Wall, 2009, p. 142). The resources, intangible and tangible ones, are combined within a certain context to follow livelihood strategies to achieve certain outcomes. Institutions and structures frame this process (Scoones, 1998, p. 3). The livelihood approach looks at the structures to identify opportunities and constraints that either enable or prevent effective livelihood strategies. More effective policies lead to more successful livelihood strategies and thus to less vulnerability, more well-being, and sustainability (De Haan, 2012, p. 347). Sustainable livelihood strategies are built on so called capitals, which are usually represented in a pentagon, depicted in figure 2.

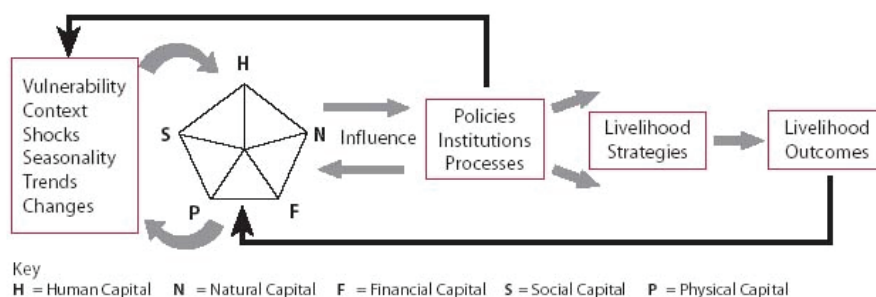


Figure 2. The sustainable livelihood framework

Source: (FAO, n.d.)

The five capitals include human capital, natural capital, financial capital, social capital, and physical capital. Human capital refers to labor as well as skills, experience, knowledge, physical capability, and creativity. Natural capital includes resources, such as land, forests, and pastures, and environmental services, such as the hydrological cycle. Financial capital refers to the capital base. Social capital describes the relations among people, for example, support systems and networks. Physical capital refers to everything physically owned, such as houses, livestock, farm equipment, and machinery. These capitals are combined to pursue livelihood strategies. However, capitals do not only represent “things”, which have to be varied to get a sustainable livelihood. They give people the capability to be and to act, are always embedded

in power relations, and are influenced by formal and informal organizational and institutional factors (De Haan, 2012, p. 548; Scoones, 1998, p. 8). Capability, together with equity and sustainability, make up the three basic concepts on which the livelihood approach is based. These concepts each have a normative and a descriptive side, should be constantly questioned, and are interlinked.

In the livelihood approach, the concept of capability is based on the work of Amartya Sen⁸ and is understood as the ability to perform certain basic functions. These are, for example, to be adequately nourished, comfortably clothed, or to lead a life without shame. Further, it includes “being able to cope with stress and shocks, and being able to find and make use of livelihood opportunities” (Chambers & Conway, 1991, p. 4). Equity ranges from unequal distribution of assets, capabilities, and opportunities to the discrimination of women, minorities, or the weak. Sustainability has an environmental and a social aspect. The environmental one deals with the preservation, degradation, or depletion of the natural environment, and the social one with the ability to cope with stress and shocks. Sustainability pertains to how assets and capabilities are being used, maintained, and enhanced, and thus how livelihoods are protected. Regrettably, livelihoods often contribute to desertification, soil erosion, or pollution. While these negative consequences of exploiting tangible assets such as reduced, intangible assets, like the claims and access needed by future generations (agreements on the access to common properties such as ocean fisheries are an example) can be affected as well. Social sustainability is connected to the ability to maintain and live with an adequate and decent livelihood. A livelihood is socially sustainable if it is able to cope with stress and shocks, and if it can enhance and exercise capabilities (ibid., pp. 4, 9-10).

Applying these three concepts under the aspect of capitals, three broad clusters of livelihood strategies for rural people can be defined: agricultural intensification and extensification, livelihood diversification, and migration. One can either gain more from agriculture through intensification, meaning more output per unit through increased capital or labor input, or through extensification, referring to more acquired land. Further, one can diversify their

⁸ Sen, Amartya 1984, ‘Rights and capabilities’, in A., Sen, *Resources, Values and Development*, Oxford: Basil Blackwell: 307-324.

Sen, Amartya 1987, *The Standard of Living*, Cambridge: Cambridge University Press Swift, J., 1989, ‘Why are rural people vulnerable to famine?’, *IDS Bulletin* 20(2): 8-15 Walker, T., and Jodha, N., 1986, ‘How small farm households adapt to risk’, in P., Hazell, C. Pomaradea, and A., Valdes, (eds), *Crop Insurance for Agricultural Development*, Baltimore: John Hopkins University Press: 17-34.

income by off-farm activities; another option is to seek a livelihood somewhere else. These different strategies can also be combined. To assess opportunities, necessary combinations of livelihood capitals have to be known. For example, for agricultural intensification, access to natural capital (for example, land) combined with economic capital (for example, credit) might be necessary. Therefore, it is crucial to understand local and historical contexts and to know how capitals can be combined to pursue different livelihood strategies (Scoones, 1998, p. 9).

In the context of the research question, the livelihood concept helps to assess the endowments of actors and define how they can overcome access barriers to the dairy value chain. Further, “[i]t also provides a means for examining social change in terms of a process of development and growth, in terms of a result of policies.” (Tao & Wall, 2009, p. 146)

Chapter 3: Methodology

Social structures are expressed by individuals through their daily interactions and can either inhibit or enable people. The thesis’ goal is to assess them and the practices in the negotiation of power between men and women in context of the dairy value chain. To profoundly explore and understand these dynamics, a combination of research methods is necessary. These are described hereafter as well as the data collection phase, the data analysis, and the challenges met in the field.

3.1 Design

To understand how value chains work one has to look not only at the chain itself, but also at underlying social processes. Thus, the thesis’ epistemological interest lies not only in analyzing the value chain and its characteristics but also in understanding social dynamics and interactions. To outline governance structures and gender dynamics, qualitative and quantitative data is collected. The use of quantitative data helps to make differences and manifestations of the examined phenomena measurable. The data is put in relation to social categories and key characteristics to be analyzed statistically. Qualitative information contributes to understand social processes, perceptions, and relations.

Qualitative and quantitative data is analyzed by applying method triangulation, data triangulation, and theory triangulation to profoundly explore the topic. This means that different methods are used (survey, semi-structured interviews, observations, focus group),

data is collected at different points in time from different people at different places, and more than one theory is applied to include various perspectives (Flick, Kardorff, Keupp, Rosenstiel, & Wolff, 1995, p. 432). This approach does not lead to a more “objective truth”, as Fielding and Fielding (1986) critically remark, but it is a way to achieve a profound, in-depth understanding of the research subject. Triangulation draws a complementary picture of the situation in the case study area, and especially method and data triangulation are a crucial part of the case study because they make it possible to look at the value chain from various perspectives.

As described above, the objective is not only to explore gender dynamics related to the governance structure and vice versa, but also to develop a methodology that can be applied in other regions. This methodology uses a three-step approach in combination with semi-structured interviews with various involved actors. The first step of the research is to conduct surveys with female producers. As a next step, in-depth interviews with selected producers are completed. To add male perspectives male producers are included in the survey and interviewed. Through the implementation of a focus group, the preliminary results are discussed and completed.

To include the perspectives of different value chain actors and to understand how the value chain works, representatives of collection centers, cooperatives, and an NGO are interviewed as well. Throughout the field research, participatory observations are made. Finally, an expert interview is conducted, in which the experiences of the experts in similar case studies are elaborated and compared with the preliminary findings for Matiguás. The goal of these methods are to include as many relevant actors as possible to generate a robust body of knowledge.

3.2 Data collection

Before beginning the field research, I paid a visit to the study site to introduce the research topic to representatives of the cooperatives and collection centers, as well as to get to know rural contexts shaping the implementation of the research. I split up the field research in three phases. In the first phase 22 surveys and seven interviews were conducted. After processing the data of the first phase, the questionnaires were slightly adapted, and I returned to the field to conduct further surveys and interviews with female producers, as well as with male producers. In the third phase I conducted the focus group.

1st step: Survey

The goal of the survey is to gain information about women's access to inputs, resources, and income, their decision-making power, their involvement in reproductive and productive tasks, their level of organization, and the production of milk. It is designed as an open questionnaire. The survey included female producers selling milk in their name to the two collection centers located in the region. In order to not assess gender dynamics based solely on female perspectives, male producers selling milk to the collection centers were also questioned, to a smaller extent, however. Male participants were contacted when picking up their payment from the collection centers. The sampling of the female producers is based on a list comprising the names of women selling milk to the two collection centers. Of the 43 listed women, 29 are surveyed. Thus, the situation of more than two thirds of the women is assessed. The ones listed, but not interviewed, either do not live on their farm, are unknown by the communities, or live too remote to enable communication in the limited amount of time. Thus, it has to be kept in mind that most of the women questioned do not live more than a one hour walk from roads and might have better access to the cooperative and are, therefore, more likely to take part in reunions and trainings.

2nd step: Semi-structured, in-depth interviews with producers

The goal of the interviews with producers, who have already been part of the survey, is to characterize their perception of gender roles in the cooperative, their experiences of exclusion and inclusion to services like credit and technical assistance, their bargaining power, and gender dynamics in the community. The interviews follow a semi-structured questionnaire and were adapted to the course of conversation and the personal circumstances of the interviewee. The interviews were conducted directly after the survey due to the fact that most producers live in very remote areas and re-visiting them would have been very time consuming. The sampling of women and men to be interviewed is based on their level of participation in the dairy value chain and their circumstances.

3rd step: Focus Group

The focus group was conducted after the survey and interviews, as the goal was to share the preliminary results, discuss, and reflect on them. Eleven out of 18 invited female producers participated, and members as well as non-members of both cooperatives were present. The focus group has proven to be a very important part of the research process: First, it prevented any criticism that foreign researchers show up in the area and do their research without any

benefit for the participants; second, the focus group offered female participants a chance to get to know each other and build up a network; and third, the discussion of the preliminary findings did not only help to validate them, but also provided a space and time for female participants to reflect upon and discuss social practices.

Semi-structured interviews with actors of the dairy value chain

To better understand the roles and working methods of cooperatives and collection centers, semi-structured interviews with representatives of both collection centers, the presidents of the cooperatives, as well as one member of the administrative board were conducted. These people are seen as experts on a local scale and within their range of work. Because one cooperative works closely with an NGO that was founded on their initiative, two of their representatives were interviewed as well.

Participatory Observation

A further methodological component is participatory observation throughout the visits in the research field. Impressions were recorded daily in a field diary, enabling later interpretation and analysis. It served as a tool to document phenomena and dynamics not addressed in any conversations. The observations included the participation in one training carried out by the Asociación para la Diversificación y el Desarrollo Agrícola Comunal (ADDAC), for livestock owners of the cooperative Flor de Pancasán.

Semi-structured interview with an expert

At the end of the research phase, an interview with an expert of the research institute Nitaplán in Managua was carried out. This was done to systematize the knowledge of this case study and to compare its preliminary results with those of previously conducted case studies. An overview of all conducted surveys and interviews is given in table 2.

Table 2. Overview of surveys and interviews conducted

Function of person	Sample size	Objective
Producer Survey	39	
Female producer delivering to El Jobo	23 (8*, 2**)	Assess access to inputs, resources, and services, decision-making power, production, distribution of tasks, and incomes
Female producer delivering to NICACENTRO	6 (4*)	
Male producer delivering to El Jobo	5 (2*)	
Male producer delivering to NICACENTRO	3 (3*)	
Representative of Flor de Pancasán	2	
Representative of NICACENTRO	1	
Representative of Collection Center El Jobo	2	Information about the organization of the collection center, its milk providers, and milk customers
Representative of Collection Center NICACENTRO	2	
Interview with ADDAC	1	
Expert interview	1	

* Number of semi-structured interviews conducted

** Number of wives of members of cooperative

Baseline Study

In addition to the described data collection, data from a baseline study, carried out for the “Increasing the productivity of dual purpose cattle in Nicaragua through use of appropriate breed types and application of best husbandry practices” project and supported by funds from the Austrian Development Agency (ADA), was used as well. The baseline study was conducted from October 2014 to January 2015 in Camoapa and Matiguás with the purpose to

generate information aimed at assessing systems constraints and identify gaps in the small to medium holder dual-purpose cattle herds; inform respective research needs and interventions, including those of the different gender and actor groups in the Nicaraguan milk and meat value chain, select animals within visited households for continuous monitoring of animal and animal performance and the associated economics of production. (ILRI, CIAT, & UNA, 2015b, p. 1)

Some of the household and farm data is helpful for this case study due to the great sampling size and additional information; only the data collected in Matiguás is used. The statistics program SPSS is used for the analysis.

3.3 Data analysis

Value chain analysis requires understanding and interpretation of underlying social interactions. The collection of data and interpretation followed the basic idea that humans do not follow cultural roles, norms, symbols, or meanings rigidly, but that every social interaction is an interpretative process in itself. Humans have to interpret every social situation for themselves and have to reflect what is being expected from them, what roles have been ascribed to them, and what perspective they have. Thus, if every social interaction is an interpretation in itself, social research is an even greater act of interpretation. Further, human actions are dependent on the individual situation, are historically influenced, and have a subjective meaning. Therefore, even a “representative sampling” does not always guarantee a valid generalization of the research results (Mayring, 2002, pp. 10, 23). To prevent arbitrariness a methodical approach is used. The qualitative content analysis after Mayring can be named as one method to fulfill this demand.

Mayring developed a method that breaks the material down into units, which are then processed sequentially. Central to this is a category system, which is defined in close connection to the material. Through this category system, certain aspects are defined and are filtered out of the material. Three working steps guide the process: summarize, explicate, and structure. The resulting category system can then be analyzed with regard to the research question and the underlying theories (ibid., pp. 114-117). In view of the research objective, the content-structural process of the content analysis, developed by Mayring, is used. Its objective is to filter out certain topics, contents, and aspects and sum them up. The extracted contents are defined through previously theory driven and developed categories (Mayring, 2010, p. 98).

3.4 Challenges

The research was carried out in Spanish, and transcripts of all the interviews were made in Spanish. This was a challenge due to the strong dialect of some people in the field. To make sure that no information was lost, all surveys and interviews were recorded, with consent, and

the transcripts were made with help of native speakers. The translation and analysis were done by myself to avoid any misinterpretation. However, being a non-native speaker, closer inquiries were sometimes difficult and, in the process of interpreting data in a foreign language, some references might not be understood.

In the research field, I introduced myself as a foreign student working with the organization CIAT to do research for my master thesis. To most of the interviewees, CIAT was unknown; this was advantageous because I was not confronted with any expectations or previous experiences. Most producers quickly agreed on taking part in the survey and interview, but were reluctant to talk about any gender differences in their community, the collection center, or the cooperative. Domestic violence is a vast issue in the case study area, which has been shown by a previous study (see Flores et al., 2011). However, this sensitive topic was not addressed in the interviews: On the one hand, because the husband was often present during the survey and interview, on the other hand, because it would have required a closer and more profound relationship with the interviewee. The amount of time was too limited to establish this kind of relationship. Difficulties analyzing (gender) dynamics and changes over a longer period of time were also due to the constrained amount of time. However, it was possible to make connections to other studies done in the research area to compare differences and similarities and to identify unique characteristics. The interpretation of the collected data is as unbiased as possible; nevertheless, it was influenced by personal experiences and the previous literature review. The results are connected and compared to previous studies and embedded in the regional context.

PART II. RESULTS AND DISCUSSION

Chapter 4: Mapping the chain – An overview of the case study site, the dairy sector, and its governance structures

Central Nicaragua produces the greatest milk output in the country and thus the research focuses on Matiguás, one of its municipalities. Hereafter, a short description of this region and its relevance for Nicaragua's milk production is given. Moreover, a brief insight to Nicaragua's past and the region's role is given to better understand local institutional and political dynamics. Subsequently, the path of milk from the producer to the final consumer is described on the basis of the three distinctive dairy value chains that can be identified in the region.

4.1 The study site and its role in Nicaragua's history

The case study takes place in central Nicaragua. The country is the largest in Central America, with a size of 130,370 km². It has a relatively low population density, with only 51 inhabitants per km², in comparison to neighboring countries such as El Salvador, with 308 inhabitants per km², or Costa Rica, with 97 inhabitants per km² (World Bank Data 2015). This difference has an impact on Nicaragua's role as a dairy exporter.

Matiguás is a region located in central Nicaragua, 180 km from Managua, the capital. Together with the districts of MuyMuy, Rio Blanco, and Paiwas it constitutes the "via láctea", the milk street. Matiguás is the largest of these territories, with 1,710 km² and about 46,000 people living in 51 communities (INIFOM, 2001; Polvorosa Narváez, 2013, p. 26). Deforestation, a significant problem in this area, is caused by the excessive expansion of agriculture and livestock farming (Lovo López & Mora Benard, 2014, p. 14). Seventy-three percent of the territory is being used for cattle; of this, 58.9 percent, can be characterized as medium farms and 31.9 percent as small farms, according to the CENAGRO in 2001. Since 2000, the milk industry has become active in the region due to the improvement of the road network and availability of electricity in some distant communities. Research and development NGOs have played an important role in this development through providing financial and non-financial support. Today Matiguás boasts the largest dairy milk output along the milk street (Polvorosa Narváez, 2013, p. 24). However, the establishment of collection centers presents a potential for pro-poor growth, "vast groups of small and medium (poor) producers have experienced exclusion and remain disarticulated from the modern high value agro-industrial chains" (ibid.,

p. 25). Thus, this region can be seen as an example of the fields of tensions arising between expanding cattle farming and its demand for land, environmental problems caused by this, and the marginalization of already disadvantaged rural groups. Therefore, the research focuses on Matiguás to understand the underlying reasons for these tensions and to improve the knowledge about how dairy value chains manifest the tensions, and also their potential to reduce them.

The research was carried out during the rainy season, which starts in May and usually lasts until November. The countryside is hilly, mostly covered by forest, and only dirt roads exist to connect the different communities. Coffee and cacao cultivation as well as milk production dominate livelihoods. Historically, the region looks back on troublesome times gone by, having been closely involved in the battles of the revolution and the Contra war. To understand the political and economic context, as well as the situation of farmers, a brief overview on the history of Nicaragua, including Matiguás, is given hereafter.

The establishment of dependencies

Nicaragua has a tumultuous past, characterized by changing external occupations, civil war, and resultant poverty. However, the war is over, and poverty remains a huge problem, that is closely linked to the agricultural system and land distribution, and thus to the situation of farmers.

The first far-reaching incident in the history of Nicaragua was the arrival of the Spaniards in 1522. It led to a drastic reduction of the indigenous people through war and diseases, and the surviving population was subjected to forced labor (Dietrich, 1988, pp. 24, 26). The colonial rulers established an agricultural system that consisted, on the one side, of large haciendas called “*economiendas*” that produced for export and, on the other side, of small farms that supplied the local market (ibid., p. 27; Lamberg, 2010, p. 45). This structure remained throughout the gain of independence in 1821 and lasted far into the 20th century, with the only shifting components being actors and cultivated goods (Dietrich, 1988, p. 38).

In the middle of the 19th century, coffee cultivation began and soon became the main export product, leading to further consolidation of the oligarchic society and discrimination of small-scale producers through expulsion and expropriations (ibid., p. 48). The USA saw a chance to increase its presence and soon gained an immense influence in the political and economic sphere (ibid., pp. 60-61). However, resistance against the US-American influence and military

formed, and in this fight Augusto Cesar Sandino stood out above all. As the leading general of a guerilla army, he fought successfully until the USA withdrew their last marines in 1933, and a new president was appointed. The Sandinos put down their weapons; however, they were still persecuted, and in February 1934 Augusto Cesar Sandino was murdered at command of Anastasio Somoza Garcia, who became president three years later. He and his family erected a dictatorship dominated by violence that lasted until 1979 (ibid., pp. 75, 83, 86, 103, 178).

The Somoza dictatorship

The dictatorship led to a concentration of land and power within the Somoza family and their supporters with help of the USA (ibid., pp. 106, 110). In Matiguás, the local population was forced to either move to the mountains or to work on big haciendas that had been given to members of the Somoza families, where they were underpaid and abused (Kolderup Gerlyng, 2006, p. 38).

At the end of the 1960s almost 60,000 farmers had lost their land. About 52 percent of the agricultural land was in the hand of four percent of the families (Herrera Vallejos, 2009, p. 3). The unequal distribution was formalized in 1963 in the “Ley de Reforma Agraria“. While the agricultural export production rose rapidly, malnutrition within the country became an increasing problem (Dietrich, 1988, pp. 126-127; Herrera Vallejos, 2009, p. 4). The oil crisis, beginning in the ‘70s, worsened the economic situation further, and, after an earthquake in 1972, the economy finally collapsed. Unemployment, price inflation, strikes, hunger, and chaos were the consequences. Around this time, the resistance movement “Frente Sandinista de Liberación Nacional” (FSLN), which referred to the fight of Augusto Cesar Sandino, was formed. They came to Matiguás to mobilize people to join the guerilla fights. As a response, a massacre in August of 1967 took place there; this was the first combat between the Sandinistas and the National Guard in Nicaragua, and many families lost their lives in this battle and thereafter (Kolderup Gerlyng, 2006). The resistance against the Somoza government grew, and in 1979 the FSLN guerillas finally overthrew Somoza, who fled the country in July of that year (Dietrich, 1988, pp. 168, 186).

With the victory of the revolution and the end of the dictatorship that had lasted almost half a century, a new chapter in the history of Nicaragua began. After years of civil war, the economy was in ruins and had to be reconstructed by the newly formed government. In 1985, Daniel Ortega, a member of the FSLN, was appointed as president.

The agricultural reform, 1979-1990, under the new government

The Sandinista-led government introduced an agrarian reform to redistribute the land that had been concentrated in the hands of the fled Somoza family and its allies. In the two phases program, the first step was to nationalize, after a socialist model, the Somoza owned plantations, which made up 25 percent of the agricultural production (Baumeister, 1985, p. 19; Dietrich, 1988, pp. 264, 266, 268). The second step was to distribute parts of the confiscated lands to smallholders and agricultural workers. Thus, men and women had access to land through working on the state farms, through receiving individual allocations of land, and through newly formed entities known as “Cooperativas Agrícola Sandinista”. The government especially encouraged these, and by the end of the ‘80s 3,252 cooperatives existed. In this time, smallholder properties had grown twenty-fold and could provide 80 percent of the basic food for Nicaragua (Dietrich, 1988, pp. 265, 271, 296; Herrera Vallejos, 2009, p. 4).

Although the Sandinista government tried to improve the access to land for women, they only made up 11 percent of the members of cooperatives. For women, it was almost impossible to be fully integrated into a cooperative as long as there was an adult male residing at home. In the patriarchal society, the male was always considered to be the head of the household, and the parcel was allocated to him. In the case of individually distributed land, women were discriminated as well: They only gained 8 percent of allocated land titles. Although the Agrarian Reform was based on equal rights and served as a role model within Latin America, in reality men and women were facing different accesses to land. Reasons for this underrepresentation can be found in the patriarchal ideology and sexual division of labor prevalent in Nicaragua (Ceci, 2005).

The dependency of the Nicaraguan economy on agricultural exports (mainly coffee, cotton, beef, and sugar) endured after the fall of the dictatorship. With the trade embargo imposed by the Reagan government in 1981, the economic crises worsened. Additionally, the US supported, through financing and training, the Nicaraguan counter-revolution, the “contras”, which tried to destabilize the Sandinista government through sabotage and attacks on the local population. Finally, a guerilla war broke out leading to many human rights abuses. Pancasán was affected by the contra war as well, with many families losing their loved ones in the ongoing battles (Dietrich, 1988, pp. 287-290, 302; as cited in Guharay & Ruiz, 1997).

The beginning of liberalizations

In 1990, the Sandinista government was deselected, which officially terminated the armed conflict and the US trade embargo. The new administration, under Violeta Barrios de Chamorro, continued to try to stabilize the economy by putting an emphasis on liberalizations (Dijkstra, 1996, p. 539; Rodríguez Alas, 2002, p. 38). The government land distribution process continued, following liberalization principles. Again, women were severely neglected in this distribution process. Through the refund of land to its original owners (the ones before 1979), many farmers lost land titles that were gained just a decade before. In general, the Barrios de Chamorro administration followed the opposed direction of the Sandista government; it preferred individual land rights instead of cooperatives. Support for collectives, given under the former government, was withdrawn, and state-owned enterprises dissolved. The issuing of land titles was often connected to high costs, which many smallholder farmers, especially female ones, could not bear. Thus smallholder farmers were often not able to gain official land titles (Ceci, 2005).

The introduction of Structural Adjustment Programs (SAPs) and their consequences

The Nicaraguan government needed external help to overcome its financial problems; in 1994, the first structural adjustment program was signed demanding the privatization of the state banks, reduction of the state sector, and return of land that had been owned by former Nicaraguan citizens, some of which had fled and attained a US-citizenship (Dijkstra, 1996, p. 539; Rodríguez Alas, 2002, p. 41).

The goal of the SAPs, to achieve long-term growth of the Nicaraguan economy, could not be achieved. “The adjustment measures did not lead to the expected increase in private investment, foreign nor domestic. “ (Dijkstra, 1996, p. 539) This was due to the risk private banks had to take up when investing in Nicaragua. The GDP did not recover, and Nicaragua was facing a continuing trade deficit. The only positive effect that can be observed is the reduction of inflation to a significant extent (ibid., p. 539).

For smallholder farmers the structural adjustments had mostly negative effects, as rural poverty increased. Being oriented towards production on the domestic market, farmers experienced negative consequences from the reduction of import tariffs and influx of food aid and imports; the producers of export products were better off. However, all smallholder farmers suffered from worsened access to credit and technical assistance. The difficulty to obtain these resources

reduced the production of smallholder farmers and the consumption of their products, therefore some had to find alternatives to improve their income. With the privatization process, taking place under the SAPs, the degree of insecurity in the countryside rose, and farmers saw their recently gained land titles in jeopardy. It can be observed that the SAPs led to the parcelization of cooperative land as well as the sale of land (Enriquez, pp. 2, 9, 14, 16, 20, 23, 32).

One group of smallholder farmers, however, could benefit from the developments: dairy farmers. The milk and cheese market had already existed prior to 1979, but the Sandista government restricted it. With the opening and liberalization of the market, under the SAPs, this sector grew again. Buyers came mainly from El Salvador because the rather small national territory was not able to satisfy the demand of its high population. The Nicaraguan milk industry was the greatest in Central America at this time, and, in 1998, El Salvador became Nicaragua's largest market for milk (ibid., p. 22).

In sum, the SAPs were not a success either regarding the recovery of the economy, nor the external account. The liberalizations that had been carried out in the financial sector and foreign trade did not lead to the expected results. Investments always follow the paths of highest profit and lowest risks; thus, investments in the financial sector, commerce, and service activities dominated as interest rates were high and investments in production stayed low (Dijkstra, 1996, pp. 540, 544-545).

The Central American Free Trade Agreement

The DR-CAFTA was presented as one way to combat unemployment and improve economic growth; it was thus agreed upon in 2006 by the US, Central America (Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua) and the Dominican Republic. The USA is a very important trade partner for Nicaragua – in 2000 42 percent of Nicaraguan exports went to the US market. The majority of these products were agricultural (products such as coffee, cotton, sugarcane, shrimp, seafood, beef, and gold). The trade agreement focused on a gradual reduction of tariff rates on imports from the US, thus more than 50 percent of US farm products had immediate duty free status in the Nicaraguan market. This led to a flooding of that market with cheap US Products, and disabled the domestic capacity to compete with capital and technology-intensive US producers (Colombo, 2008, pp. 5-7; Storrs et al., 2004, pp. 7-8, 60).

While on a state level the opening of the economy was decided, in 2006 Matiguás was the site for the foundation of the cooperative NICACENTRO, on the initiative of the NGO FONDEAGRO⁹; this was established to improve the negotiation position of milk producers against the large pasteurization industry coming from abroad (Polvorosa Narváez, 2013, p. 52). The cooperative “Flor de Pancasán” was formed in the same year as NICACENTRO, also on the initiative of an NGO, in this case ADDAC. Initially, people were reluctant to the idea of a cooperative, as it would mean moving into the visibility of the state, which they distrusted due to their troublesome past and also out of the fear that leaders would enrich themselves. But people could be convinced, and a structure could be set up with committees focusing on different aspects (Albuja Carbonell, 2008, p. 7).

Recent policies of the Ortega administration

During the time of research, Ortega had been voted back in the presidential office; however, observers have criticized the opaque election process (Gómez Pomeri, 2012, p. 1). Ortega put the fight against poverty and the improvement of the situation of smallholder farmers on his agenda. For this, he started several campaigns, e.g., “usura cero”, “casas para el pueblo”, “calles para el pueblo”, and the most well-known was “hambre cero”, which aimed at fighting extreme poverty and hunger, eradicating chronic malnutrition, strengthening production, and distributing amongst families means of production (Programa Hambre Cero, 2015). The last point refers to the distribution of livestock and goods to increase production. However, the distribution is coupled with land ownership; thus families without land are not entitled to this supply, and women, owning less land on average than men, are disadvantaged (Perez, 2011).

Although one could emphasize the good intention of fighting extreme poverty still existing in Nicaragua, corruption, “caudillismo”¹⁰, clientelism, and misuse of the program for political reasons are dominating. It has been noticed that the distribution of goods and livestock was primarily in the election year, 2008, and most of the beneficiaries have been FSLN supporters, as political secretaries of the FSLN are responsible for the distribution. The program management has been rather non-transparent and inefficient and has not yet yielded the expected results (Gómez Pomeri, 2012, pp. 97-100).

⁹ FONDEAGRO was born from the cooperation framework between the Swedish International Development Cooperation Agency (SIDA) and the Agriculture, Livestock and Forestal Ministry of Nicaragua (MAGFOR).

¹⁰ Caudillismo refers to a system of social and political domination. A “caudillo” is a charismatic, irregular leader. Its subordinates are obedient only to him, and not the law, due to a paternalistic relationship (Dietrich 1988: 43).

Another program important in regard of dairy production is “un vaso de leche escolar”. The objective of the program is to promote the consumption of milk in order to fight malnutrition, optimize the performance at school, develop the local milk production, and reduce poverty by creating jobs (Jarquín, 2015). Although the law regarding this program was passed four years ago, actions to realize it have never been implemented. Nevertheless, two positive trends of the dairy sector have been recognized within the last years: The general level of milk quality has been increased as well as the competitiveness of the dairy sector (Interview President NICACENTRO, 2015). Both developments apply to all three dairy value chains existing in Nicaragua, which are described in detail hereafter.

4.2 Following the milk: a map of the three dairy value chains and their actors

In Matiguás three different dairy value chains can be identified: the industrial dairy chain, the semi-industrial cheese export chain, and the traditional cheese making chain. These value chains are interlinked as, for example, some producers are active in more than one chain. While the former is assigned to the formal sector, the latter two constitute the informal sector. The benefit of the participation in each chain differs, as do required quality standards, in correlation to the benefit. One category deciding the access to the various chains is gender. In the following, the three chains are described to subsequently analyze the effect of gender in combination with other structuring categories.

4.2.1 The industrial dairy value chain

The industrial dairy chain is the most recently developed one, starting to become active in the region in 2002. This chain is linked to pasteurization plants, located in Managua, and is able to produce the widest variety of dairy products with the highest levels of value added. It offers to producers the smallest price variations across the seasons of the year making it the most beneficial one for producers. However, quality demands are high and fulfilling them presents a problem to some producers (Polvorosa Narváez, 2013, p. 40).

This case study focused on the industrial chain and the embedded gender dynamics and governance structures of this chain. The two collection centers, the starting points of the research, deliver to the pasteurization industry in Managua, and the following description is based on the results of their investigations and those of the respective cooperatives.

Government structures, and gender dynamics further down the line are not analyzed; however, their description is based on former case studies in the area. The description of this chain starts with a characterization of every actor along it, from the provision of inputs and services that are necessary to produce milk up to the final consumer. An oversight of the actors and their tasks regarding the industrial chain is given in figure 3.

Input and Service-Providers

Inputs and services are mainly provided by the collection centers and cooperatives. Collection Centers deliver, for example, filters, seeds, material for fences, buckets, and funnels at discount prices (since they can order large volumes). Veterinary products can be obtained as well. Non-members and members alike are able to purchase all products. Some producers buy equipment from local stores, in the towns of Matiguás or Matagalpa, appreciating the chance to negotiate prices. In the case of obtaining the products from the collection center, the costs are deducted from the producers' weekly milk payments. They offer the possibility of small loans as well in the form of pre-payments. These pre-payments are based on the amount of milk being sold to the collection center.¹¹

¹¹ Flor de Pancasán offers pre-payments on a base of 60 percent of the weekly sold milk to a 1percent interest rate (Interview Collection Center Flor de Pancasán).

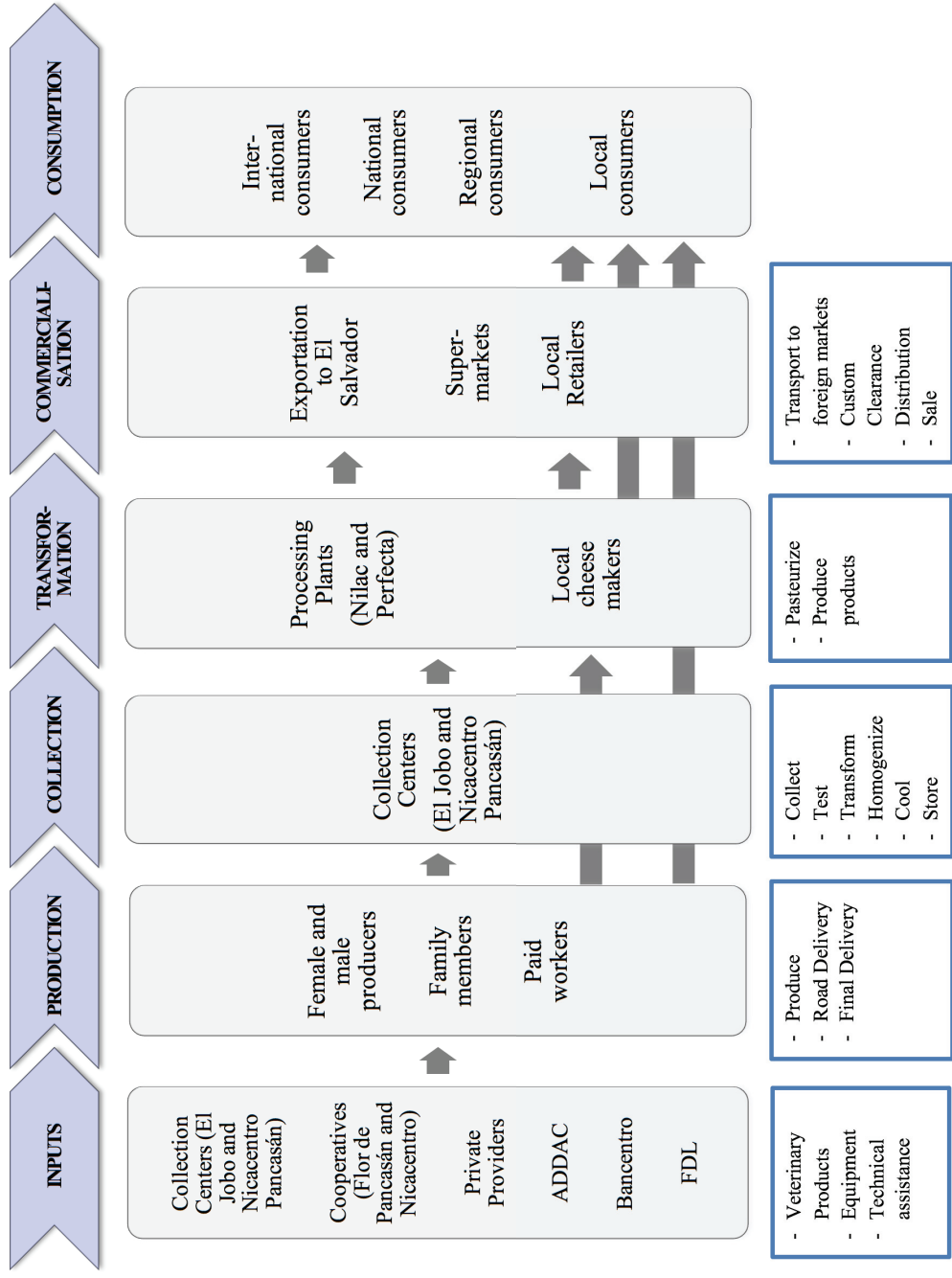


Figure 3. The industrial dairy value chain in the north of Matiguás
Source: Interviews, surveys and observations

Beyond that, cooperatives and (their) collection centers play an important role in providing services for instance technical assistance, trainings and veterinary services. While technical assistance and trainings are free of charge, veterinary services usually require payment. The service of technical assistance means that technicians employed by the collection centers visit dairy farms to explain good milking practices¹² and talk about improving quality standards. Farmers delivering low quality milk are an emphasized focus of these visits. Trainings include information about good milking practices next to topics regarding, for example, organizational skills, production, and future planning. These trainings are not exclusively offered by the cooperative, NGOs such as ADDAC often undertake them in coordination with the cooperative. Further, veterinary services are offered by the cooperative and collection centers. NICACENTRO, for example, employs its own veterinarians that can be called by farmers, and technicians help out in veterinary matters as well (Interview ADDAC, 2015; Interview Manager Collection Center El Jobo, 2015; Interview Manager Collection Center Pancasán, 2015).

Credit, to invest, for example, in a better milking infrastructure, for example, can be obtained, from various sources in the region. The cooperative, communities, or ADDAC offer credit, but the Fondo de Desarrollo Local (FDL), a non-profit microfinance institution, or private banks such as Bancentro are examples of other institutions that provide credit as well (Survey Producers in Matiguás, 2015).

Producers

Smallholder farmers produce the greatest share of dairy products in the country. They usually have three characteristics: The farms are family-operated, there is no or limited non-family hired labor, and the amount of land owned is rather small. A clear distinction between small- and medium-sized farmers is usually based on the amount of hectares; however, this study refrains from such definitions, as they neglect contexts and local disparities such as the widely differing fertility of soils or land covers (Berdegué & Fuentealba, 2011, p. 8). Instead, relative numbers are given to get an idea about average sizes of farms. For example, more than half of the national livestock (2.1 million cattle) is in the hands of farmers that own less than 10 ha (Holmann, 2014, p. 15). In the case of Matiguás, producers owning less than 35 ha make up

¹² “Good milking practices” refer to actions taken to improve the quality of the milk such as washing the hands before milking, milking in a clean area, washing the udder of the cow with chlorine or filtering of the milk.

more than 60 percent of dairy farmers, as can be seen in table 3. Each of this group owns, on average, 21 cattle (including non-milk producing cattle).

Table 3. Average land and cattle size

Land Size*	% of HH	Cattle herd size (Mean \pm SD)
2.5-10	10.0	5.9 \pm 3.1
10-20	13.3	12.1 \pm 5.2
20-50	38.7	28.6 \pm 13.5
50-100	20.3	49.1 \pm 22.3
100-200	13.4	102.1 \pm 50.8
>200	4.6	136.4 \pm 79.5

Sample size n=261

* Land size described in Manzanas (1 mz = 0.7 hectares)

Source: adaption from (ILRI et al., 2015b)

A big problem for small- to medium-sized farmers is the low and highly-fluctuating milk productivity. Most farmers implement free stockyard grazing for their livestock, thus cattle-feeding depends on the availability of grass, which is more abundant during the winter rain season, from May till November. During this time milk production peaks, therefore milk prices are the lowest. In the summer dry season the lack of rain reduces the availability of grass and, thus, the production of milk. This pattern influences milk quality as well. During the rain season high quality milk becomes more difficult to produce because the mud makes hygienic milking practices harder to implement (Interview Manager Collection Center Pancasán, 2015; Interview President NICACENTRO, 2015; Interviews Producers in Matiguás, 2015). This combination leads to a flush of lower quality milk in the rain season, in which on average 4-5 liters/cow/day are produced, and a lean season with on average 2-3 liters/cow/day of higher quality. Therefore, 70 percent of the milk is produced during the seven-month long rainy season, when fodder production and quality are best, but when market prices are lowest. Because of this and their small size, most farms have complementary activities such as the cultivation of staple crops, perhaps beans or corn (Holmann, 2014, p. 15; Survey Producers in Matiguás, 2015). Most farmers have additional animals, often poultry and pigs, to cover domestic consumption. Ownership of these animals is not equally distributed amongst men and women. Men tend to own bigger animals such as cattle and donkeys or horses, while women

are likely to be excluded from possessing and handling them and are more prone to own smaller animals, for example, chickens, as can be seen in table 4.

Table 4. Livestock ownership by gender in Matiguás

Livestock Species	Ownership by Gender		
	Male % of Species	Female % of Species	Joint % of Species
Cattle	78.7%	14.0%	7.3%
Goats	100.0%	0.0%	0.0%
Sheep	74.7%	25.3%	0.0%
Poultry	43.6%	51.5%	4.8%
Pig	58.6%	33.3%	8.0%
Donkeys/Horses	86.4%	10.3%	3.3%

Source: adaption from (ILRI et al., 2015b)

In general, women own fewer animals than men. Furthermore, women are less likely to be the head of a cattle-farming household. In Matiguás only 96 out of 258 women are officially in charge of the household (ILRI, CIAT, & UNA, 2015a). Women are underrepresented as members in milk cooperatives as well. Regardless of being a member or not, they can sell their milk to the collection centers, although they do not enjoy the same benefits as members (Interview President NICACENTRO, 2015). When selling to collection centers, however, milk requires a certain quality, and milk of quality C or acid milk can be rejected (Interview Manager Collection Center El Jobo, 2015).

Most producers prefer their milk to be picked up daily if they are on one of the milk collection routes, although a small fee has to be paid for this service. Producers living in the vicinity of collection centers bring in their milk on horseback or donkeys (Interview Manager Collection Center El Jobo, 2015; Interview Manager Collection Center Pancasán, 2015).

Collection Centers

Collection Centers represent the most important link from producers to the pasteurization industry in the capital. Their tasks are to test the milk upon arrival and to store and cool it until it is picked up. The testing allows screening for poor quality milk that could contaminate the rest of the milk in the tank. Milk is classified as A, B or C, where A is the best and the processing plants often reject C. Producers get paid according to the quality of their milk

(Interview Manager Collection Center El Jobo, 2015; Interview Manager Collection Center Pancasán, 2015).

The first collection centers opened in 2002 in urban areas, and today ten collection centers are active in Matiguás, collecting approximately 70,000 liters of milk a day. Most of them were founded by cooperatives, with help of local NGOs, but private and non-profit private collection centers exist as well. Before their existence, intermediaries collected the milk and delivered it to private collection centers or semi-industrial cheese making plants. In this system, producers were subjected to low and highly variable milk prices, a consequence of the missing competition and almost no provided services. Thus, farmers fought for their own collection centers under the management of cooperatives (Polvorosa Narváez, 2013, pp. 51-53).

Cooperatives

Cooperatives are associations of farmers, which, in the case of milk, own and operate milk collection centers. Their objective is to offer stable and high milk prices to producers and a range of services, e.g., technical assistance or veterinary services. Another hope, during their foundation, was the better negotiation power towards pasteurization plants. However, this hope has been partly abolished. All collection centers have agreements with the plants for the supply of milk however, these agreements are rarely formal and their negotiation power is low (Interview President NICACENTRO, 2015; Polvorosa Narváez, 2013, p. 52). The case study focused on the two collection centers located in the north of Matiguás (see figure 4), one run partly by the cooperative Flor de Pancasán, the other by NICACENTRO.



Figure 4. Map of the study site

Source: adaption from (Polvorosa Narváez, 2013, p. 96)

The cooperative Flor de Pancasán and the collection center El Jobo

The cooperative Flor de Pancasán was founded on May 2nd, 2006 on the initiative of ADDAC and is still closely connected with them. (Interview ADDAC, 2015; Interview President Flor de Pancasán, 2015). The cooperative is active in 18 communities in the north of Matiguás and, in contrast to NICACENTRO, does not work with only milk producers but also deals with coffee and cacao, which make up a greater part of their labor than milk. Of its 316 members, 97 deliver milk to the collection center. The other 70 percent sell coffee or cacao to the cooperative. The requirements to become a member are to take part in a training session on cooperativism, a payment of about 12 USD, and a valid identity card (ibid.; Interview Secretary of Administrative Board Flor de Pancasán, 2015; Interviews Producers in Matiguás, 2015).

The open-access collection center El Jobo, belonging partly to Flor de Pancasán, is the only non-profit private collection center in Matiguás. It was built as a result of a donation of 200,000 USD by the Norwegian government in 2008. The operative business is conducted by ADDAC, which receives 60 percent of the profits, and the other 40 percent go to the cooperative. One of the unique characteristics of the collection center is that non-members enjoy the same benefits and the same milk prices as members. About half of the producers delivering milk are members

of Flor de Pancasán as well. The storing capacity amounts 15,000 liters; however, during the time of research only 8,500 liters to 9,000 liters a day were collected and cooled there. El Jobo accepts milk of quality A and B, while the acceptance of C and acid milk depends on the availability of alternative buyers because the processing industry, in this case NILAC, rejects this milk. Low quality milk is often sold to women producing “cuajada” (Interview ADDAC, 2015; Interview Manager Collection Center El Jobo, 2015).

Not far from the collection center El Jobo, the collection center Pancasán, of the cooperative NICACENTRO, is located and is part of the study as well.

The cooperative NICACENTRO

NICACENTRO is the largest dairy cooperative in all of Nicaragua. It started with four collection centers and 230 members in 2006 and has grown immensely since then. Today NICACENTRO runs thirteen collection centers that collect 60,000 to 80,000 liters a day, making it the largest regarding its collecting capacity, its regional coverage, and member size. They count 1,060 members; the number of people bringing milk to the collection centers, however, is even greater (Flores et al., 2011, p. 66; Interview President NICACENTRO, 2015). To become a member one has to pay a standard fee of 110 USD and an extraordinary fee that depends on the amount of milk to be brought in on average. Further requirements include the participation in a course of cooperativism and a valid identity card (Interviews Producers in Matiguás, 2015). NICACENTRO is active in five municipalities, and three of their thirteen collection centers are located in Matiguás (Interview President NICACENTRO, 2015; Polvorosa Narváez, 2013, p. 52).

The collection center Pancasán, which is the center of the investigation, was one of the first built, in 2006. It has one tank, which can store up to 8,000 liters. During the time of the investigation (September 2015), it stored around 3,600 liters to 3,700 liters a day. Thus, the collection center Pancasán belongs to the smaller ones of the cooperative; only 62 producers bring in their milk daily, with the proportion of women (only seven) being extremely low (Interview Manager Collection Center Pancasán, 2015). Not all of these 62 producers are members. Non-members can bring in their milk as well; however, they are paid a lower price than members. Producers bringing in low quality milk, meaning of quality C or acid milk, are rejected because the collection center tries to keep the proportion of about 75 percent of quality A and 25 percent of quality B. (The milk is mixed in one tank, and quality B lowers the price

paid by the industry for it) (Interview Manager Collection Center Pancasán, 2015). Pancasán sells its milk to Perfecta, which is owned by Parmalat, the biggest milk collector in Nicaragua and a transnational enterprise. Perfecta mainly produces pasteurized milk, which can be found in national supermarkets. The other collection centers belonging to NICACENTRO sell to other pasteurization plants such as Nilac, Lala, and Perfecta, and about one quarter of its milk goes to cheese making plants. Thus, it is active not only in the industrial chain but also in the semi-industrial one (Flores et al., 2011, p. 67; Interview President NICACENTRO, 2015).

Pasteurization Industry

A few separate firms control the Nicaraguan milk industry. Six international and one national firm process milk and produce dairy products for local consumption and export: transnational Parmalat and Eskimo, Mexican Lala, Nestlé for Prolacsa, Salvadorian Nilac, La Exquisita, and the national Centrolac. Except for La Exquisita, the firms all obtain milk from Matiguás. They have all recognized the potential of the growth in the Nicaraguan dairy sector, which becomes evident looking at the export numbers illustrated in figure 5. The amount of exported cheese has increased almost fivefold, and evaporated milk ninefold, between 2000 and 2012. This gave an incentive for transnational firms to invest in processing plants (Flores et al., 2011, p. 73; Polvorosa Narváez, 2013, p. 54). However, only three firms, Prolacsa, Centrolac and Nilac, are focused on the export market (Holmann, 2014, p. 35).

These named firms are not only responsible for the pasteurization and processing, but also for export and wholesale in the countries they export to and on national markets (Polvorosa Narváez, 2013, p. 54). The five firms active in the region can be divided into three categories regarding their main functions: pasteurization plants, industrial cheese making plants, and milk powder plants.

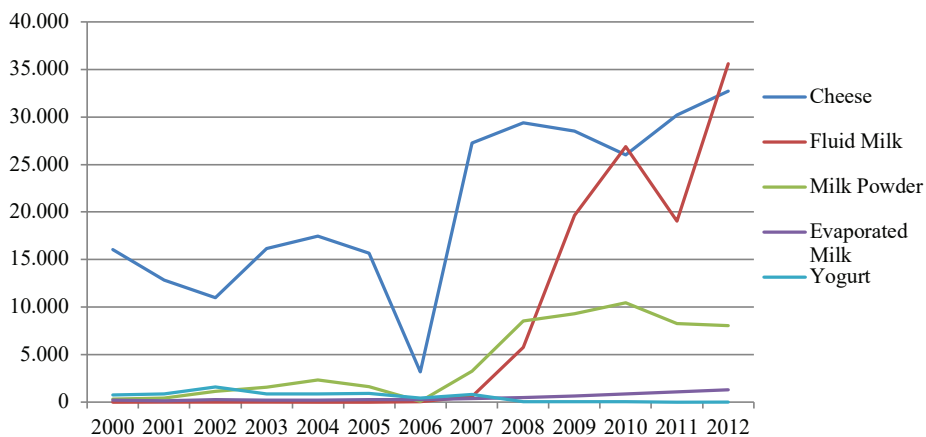


Figure 5. Quantity¹³ of dairy products exported from Nicaragua during 2000 to 2011 (in metric tons per year)

Source: (FAO, 2013)

The pasteurization plants belong to the firms Parmalat, Eskimo, and Centrolac. In addition to pasteurizing milk, they produce other dairy products such as cheese, sweet and acid creams, butter, margarine, yogurts, caramel, and flavored milks. They produce for the national market, to which they sell through formal supermarket chains as well as through local stores in neighborhoods, and for other Central American countries, mainly El Salvador, Honduras, and Guatemala (Polvorosa Narváez, 2013, p. 55). Perfecta, the brand the collection center Pancasán sells to, mainly produces pasteurized milk for the national market.

The industrial cheese making plant, of the brand Nilac (also referred to as Nilac S.A. or Nilacsa), is a subsidiary of the Salvadorian Lactosa (Polvorosa Narváez, 2013, p. 55) and is involved in the production of cheese for export to other Central American markets. The milk sold to Nilac from the collection center El Jobo is processed into mozzarella and sold to Pizza Hut in Guatemala, El Salvador, and Honduras. The milk collected at El Jobo does not supply the national market (Interview ADDAC, 2015; Interview President NICACENTRO, 2015).

¹³ It takes on average about 8 liters of fresh fluid milk to produce 1 kg of milk powder, 9 liters of milk to produce 1 kg of cheese, 2.3 liters to produce 1 kg of yogurt or evaporated milk, and 5.8 liters to produce 1 kg of condensed milk (Holmann, 2014, p. 28).

The powder milk plant of Prolacsa takes the smallest share, and is located in Matagalpa. The plant, built in the sixties, exclusively produces milk powder. The production is low and almost all the processed milk powder is being exported. To satisfy the relatively low national demand, milk powder is being imported at the same time from the USA to produce yogurt. The international milk powder price is very low, and this situation is not likely to change because of the low international demand, high supply, and reduced trade barriers, hampering the competitive ability of Nicaragua regarding the export of milk powder (Interview President NICACENTRO, 2015).

National Retailers

Large supermarket chains distribute and sell dairy products in Nicaragua as well as abroad. In Nicaragua, three major supermarket chains are active, running about 60 stores across the country, and the majorities are concentrated in Managua. Local, smaller stores are other distributors of dairy products from this chain (Polvorosa Narváez, 2013, p. 55).

Consumers

National as well as foreign consumers use dairy products from the industrial chain. High value-added products can be found in the national supermarket chains located in the capital, where high-end consumers shop. The vast majority of consumers buy milk products in “pulperías” (informal grocery shops). Little research exists on foreign consumers, and thus not much is known about their consumption patterns (Polvorosa Narváez, 2013, p. 56).

Cattle farmers act as a further group of consumers. They prefer to process the milk into cheese and the unprocessed milk is preserved for babies and children. However, many producers sell all their milk to the collection center, especially small farmers, as it is often the only source of income (Survey Producers in Matiguás, 2015).

4.2.2 Semi-industrial cheese making chain

The semi-industrial cheese making chain is not investigated; however, it is shortly described in the following to get a complete picture of the milk and dairy industry in Nicaragua. There are no semi-industrial cheese making plants in the focus area, but it is likely that farmers exist that deliver to these plants.

Input and Service-Providers

A characteristic for this chain is that there exist no specific input providers, as do in the industrial chain, because the producers are not organized in cooperatives or collection centers. Thus, producers have to fall back upon private stores and providers.

Producers

The producers delivering to semi-industrial cheese plants live near access roads to plants, and commercial intermediaries take over the transportation through operating milk collection routes, thus competing with local collection centers. Farmers selling their milk to the semi-industrial cheese plants are either excluded from collection centers for not fulfilling quality standards, or prefer to bargain directly with the plants. Some prefer not to get organized as well. In the latter case, farmers produce large amounts of milk, and thus are able to negotiate more limited benefits and higher milk prices than the ones that result in collection centers. The proportion of farmers that are part of this chain is difficult to estimate as commercial intermediaries try to keep their supplying farmers a secret, and their identity is not always known to the plants (Flores et al., 2011, p. 84; Polvorosa Narváez, 2013, p. 68).

Commercial intermediaries

Each commercial intermediary has their own truck with which he or she operates one milk collection route that covers the main access roads to distant communities. The relationship between producers and intermediaries is informal: there is low coordination and no fixed quantities, qualities, or prices. According to a survey in 2013, about 23 percent of the commercialized milk in the territory is collected through these agents. Intermediaries sell milk to all three chains; however, the majority goes to semi-industrialized cheese plants (Flores et al., 2011, p. 85; Polvorosa Narváez, 2013, pp. 69, 86-87).

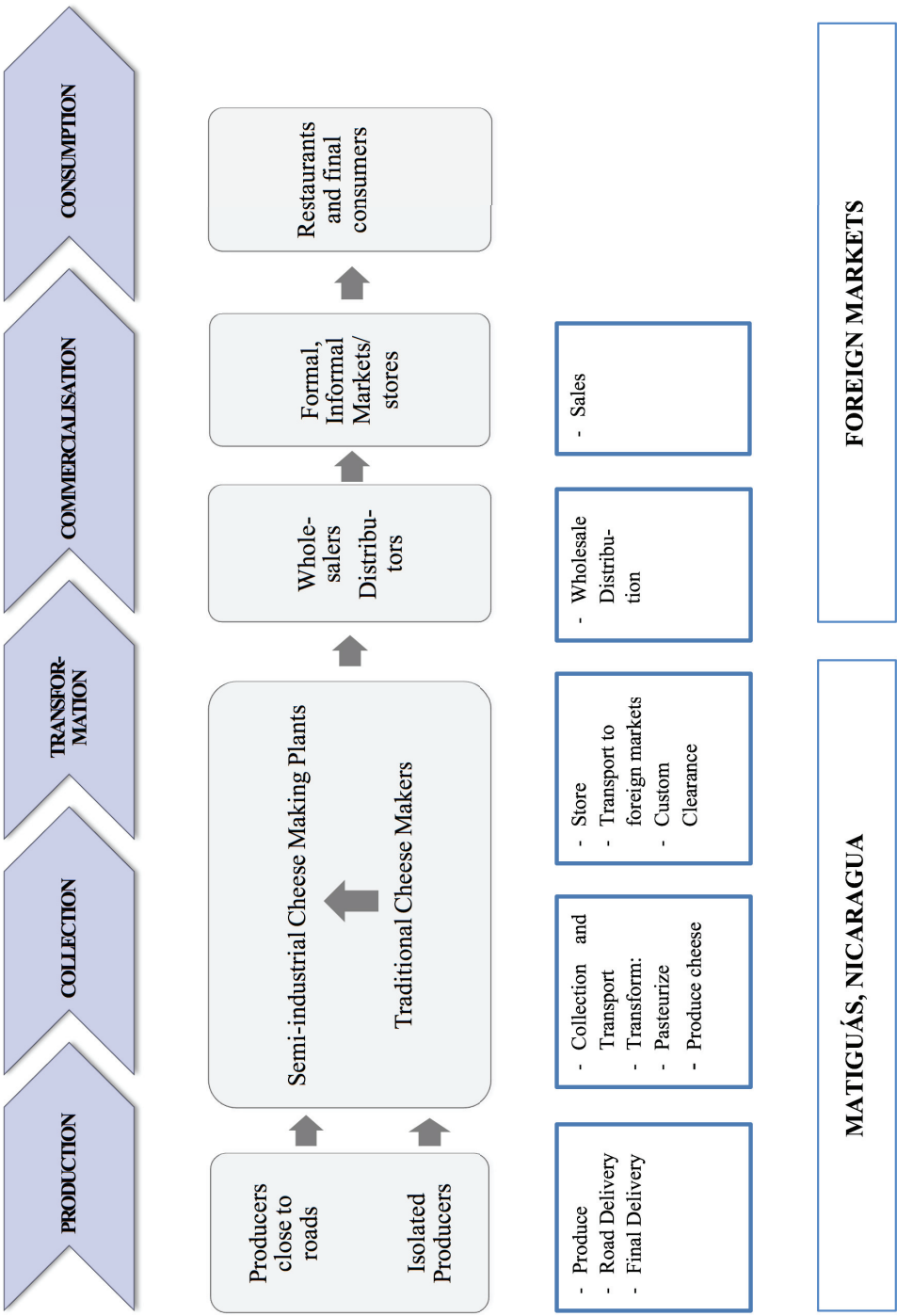


Figure 6. The semi-industrial cheese making chain
Source: (Polvorosa Narváez, 2013, p. 66)

Processors and Exporters

El Salvadorian investors arrived to the region in the nineties and built the first cheese making plants to take advantage of low milk prices and export the cheese to El Salvador. Because of its high population density in comparison to Nicaragua (see chapter 4.1), El Salvador cannot satisfy the national cheese demand and must import. The two semi-industrialized cheese plants in Matiguás are still in the hands of private investors; one is from El Salvador, the other from Honduras (Polvorosa Narváez, 2013, pp. 66, 68-70).

Wholesalers and Retailers

In addition to the processing of milk into cheese, semi-industrialized cheese plants are responsible for the export process as well. The cheese exporters in Matiguás work closely with their foreign contacts to identify the best time for import and sale of cheese because of the highly fluctuating prices and demands. Thus, this relationship allows for an effective coordination between supply and demand, and infrastructure and the product allow long storage times (Polvorosa Narváez, 2013, p. 70).

Foreign Consumers

The produced “moralique cheese” is a very dry cheese used in the preparation of many local El Salvadorian dishes. Thus, the largest consumer group in the USA is the Latin community, mainly from Central America, and local consumers on informal markets in the capitals of El Salvador and Honduras (Polvorosa Narváez, 2013, p. 71).

4.2.3 The Traditional Cheese Making Chain

As described above, the three value chains are closely connected, and farmers cannot always be ascribed to only one. One chain that is exceedingly interlinked with the industrial dairy chain is the traditional cheese making chain, as some farmers, when being rejected at the collection centers for not fulfilling quality requirements, turn to this chain (Interview Manager Collection Center El Jobo, 2015). Therefore, although not the focus, the research also touched this chain and the findings are described hereafter.

Inputs- and Service-Providers

As in the semi-industrial cheese making chain, there are no explicit inputs and service providers that would facilitate trainings, technical assistance, or credit.

Producers

Milk producers active in this chain range from very small, with ten liters a day, to sizable, with 100 liters a day. They do not have access to collection centers because they live too remotely and/or reach the meeting points too late in the day to take advantage of the milk collection routes. Most of these producers generate only low quality milk because they do not apply “good practices” or do not have the necessary infrastructure to achieve higher quality. These farmers have neither access to trainings, nor technical assistance to learn the practices (Flores et al., 2011, pp. 100-101). Thus, their exclusion from the industrial chain is further reinforced.

Traditional Cheese Processors

Traditional cheese makers are usually located in very isolated locations, buying milk from neighbors and/or producing themselves. However, in some cases cheese makers live close to the urban center, where they buy the lowest quality milk from collection centers to produce traditional cheese at their homes. Traditional cheeses are either “cuajada” or “criollo”, and sometimes cream is produced as well. The production processes require low investments in infrastructure and equipment, and no safety and health standards need to be fulfilled. The milk is neither pasteurized nor cooled prior to processing.

The production usually takes place in the domestic space, and the knowledge to produce cheese is acquired through other family members. There are no formal trainings on how to produce traditional cheese. Because the production of “cuajada” or “criollo” is carried out in the kitchen, it is considered a “women’s task” and is almost exclusively carried out by women (Flores et al., 2011, pp. 102-106; Interview ADDAC, 2015; Interviews Producers in Matiguás, 2015).

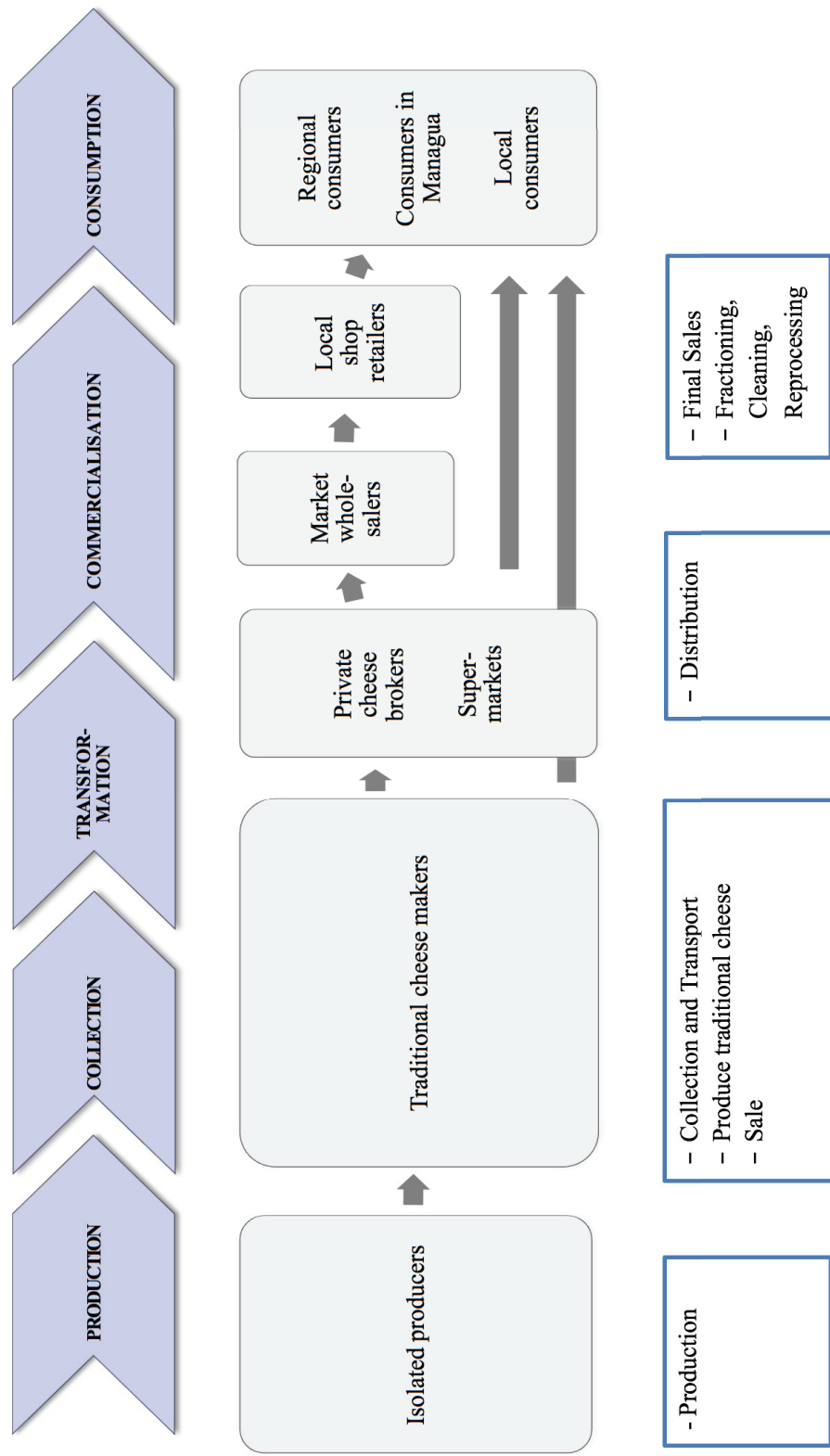


Figure 7. The traditional cheese making chain

Source: own elaboration based on (Polvorosa Narváez, 2013, p. 79) and completed with help of interviews

Transporters, wholesalers and retailers

Traditional cheese makers sell their cheese to private cheese brokers, who travel around the countryside to buy cheese from these small processors. They transport the cheese to large markets, for example, the Montenegro market in Managua. There, the cheese is sold to wholesalers and retailers, who add value through cleaning, roasting, and fractioning. They resell the cheese to restaurants, local stores, or directly to the final consumer (Flores et al., 2011, pp. 102-106; Interview ADDAC, 2015; Interviews Producers in Matiguás, 2015).

A second path leads from the traditional cheese makers directly to supermarkets. However, few processors exist with these contacts, which are highly beneficial. Financial requirements and investments in hygienic milking practices and equipment are necessary to sell directly to supermarket chains like “Estrella”. Often, small processors cannot fulfill these demands (Interviews Producers in Matiguás, 2015).

The shortest route to the final consumer is through selling directly from the processing farms to consumers in neighboring communities. Often, a small share of the cheese made is sold to neighbors, while the rest is sold to supermarkets or, if that path is not accessible, to intermediaries (Interviews Producers in Matiguás, 2015; Polvorosa Narváez, 2013, p. 81).

Consumers

Traditional cheese is bought primarily by low-income consumers, who prefer the richer taste of the non-pasteurized product and its low price in comparison to cheese available in supermarkets. In rural areas they buy it from neighbors, whereas in urban areas they have access through markets, local stores, or stands on the streets.

4.2.4 Comparison of the dairy value chains

As was shown, milk production, processing, and consumption can follow various paths in Nicaragua. Most often small- and medium farmers carry out the production, but large farmers exist as well. The processing can happen in vast pasteurization plants or in the domestic sphere and the consumer can be international, national, regional, or local. The three different chains function to a great extent independently; however, one chain may use milk from another to balance demand and supply, and thus they are slightly interlinked.

Daily 2.7 million liters of milk are produced in Nicaragua. While about one third goes into the formal sector, to which the investigated chain belongs, the remaining two thirds are delivered to the informal one, the semi-industrial cheese export chain and the traditional cheese making chain (Interview President NICACENTRO, 2015). Comparing the benefits of the two sectors for producers, it becomes clear that the formal sector with the industrial chain offers the greatest benefits. Milk collection centers pay the highest and most stable prices as well as other services and resources such as technical assistance, credit, and inputs. However, entry barriers to this sector are high and not all farmers have the means to fulfill them. Those facing financial limitations are especially restrained from investing in necessary (milking) infrastructure, like roofed corrals or milking utensils, to improve milk quality. Moreover, the higher prices paid by collection centers are partly leveled off through the investments that have to be made (Flores et al., 2011, p. 110). Those farmers that are not able to deliver consistently high quality milk (meaning A, or at least B) are rejected at milk collection centers, despite being members of the accompanying cooperative. In the case of NICACENTRO, farmers delivering quality C twice are suspended from the collection center. In this way, the cooperatives try to ensure high quality milk delivery to the industry (Interview President NICACENTRO, 2015).

In the informal sector quality plays a subordinate role. All qualities are accepted and no price discrimination for the different qualities exists. Therefore, the informal sector seems to be more inclusive for farmers independent in their production conditions. However, the disadvantages are highly fluctuating and generally lower prices that are partly the result of the dependency of production on the seasonal rainfall patterns (Flores et al., 2011, p. 113). The informal sector, to which the semi-industrial cheese export chain belongs, mainly exports its cheese. As described above, El Salvador is the main importer of this poor-quality cheese as it has four times the population of Nicaragua, only a quarter of its size, and almost no domestic milk production. No official numbers exist, but most of the cheese produced in the semi-industrial chain is exported to El Salvador illegally. This damages Nicaragua's dairy sector sustainably because it inhibits the development of a better cheese quality and with it the exploration of other markets (Interview President NICACENTRO, 2015).

Not only does the illegal exportation of cheese undermine efforts to improve quality, but also does the structure of the dairy sector, with the co-existence of three weakly connected chains. Each chain has different demands and answers to different quality requirements. Therefore, it poses a challenge to develop harmonized quality and safety standards that are applicable nationwide.

4.3 Governance structures within the industrial value chain

Governance refers to the process of exercising control along the chain. It indicates the power to include or exclude actors, to influence or determine their activities, and to capture a great share of the retail price. However, wielding control does not necessarily mean to executively exert imposed rules; other actors can act on the behalf of lead firms, thus becoming lead firms themselves. Thus, governance can have various facets. In the following, the governance structures of the dairy value chain are analyzed along with aspects of quality and safety standards, bargaining power, and added value. Of course, these are not the only aspects in which governance structure manifests itself; they are, however, seen as the most characteristic for the dairy value chain.

Implementation of quality and safety standards

“Value chains are governed when parameters requiring product, process, and logistic qualification are set which have consequences up or down the value chain encompassing bundles of activities, actors, roles, and functions.” (Kaplinsky & Morris, 2001, p. 29) Quality standards are one of these set parameters. Looking at who enforces them, how they are enforced, and how they are sanctioned helps to identify governance structures.

In the dairy sector of Nicaragua, quality standards are set by the pasteurization industry in accordance with the Technical Norm for Cheese and Dairy Products (MIFIC, 2009)¹⁴ to guarantee the safety and quality of dairy products for the final consumer (Interview Manager Collection Center Pancasán, 2015; Polvorosa Narváez, 2013, p. 58). The quality standards have to be met upon arrival of the fresh milk at the processing plant. They are the guarantee to produce a high value-added product. The processing plants test the fresh milk in their

¹⁴ MIFIC, 2009, Normas Técnicas Obligatorias Nicaragüenses para el Procesamiento y Comercialización de Queso <http://www.mific.gob.ni/LinkClick.aspx?fileticket=AUgfuXcuTGS%3D&tabid=602&language=es-NI>

laboratories and reward or punish the meeting of standards through a pricing scheme based on milk quality. The industry justifies this pricing scheme as an incentive for farmers to produce higher quality milk. However, producers and cooperatives see it as a way of exerting downward pressure on prices, especially during the rain season when milk output increases and it is more difficult to maintain high quality milk (Interviews Producers in Matiguás, 2015).

The pricing scheme is not the only controversy; the transparency of test results regarding the milk quality on which the prices depend is another one. Milk collection centers replicate the quality standards set by the industry for their producers and pass on the pricing scheme. Each milk can is tested for its bacteria concentration upon arrival at the collection center and payment to the producer is based on this test. After testing, the milk is collected in a tank. Upon pick-up by the pasteurization plant, a sample is taken to test the quality of the collected milk at industries' laboratories. Usually there are no discrepancies between the lab-results of the collection center and the pasteurization industry, but collection centers have reported a few cases of quality disagreements, especially during the flush season. They accuse the industry of intentionally manipulating lab-results that prove a lower quality to bring down prices. Because of the abundance of milk in the rain season, the bargaining power of collection centers and cooperatives is limited and the pasteurization industry is said to exploit this (Interview Manager Collection Center Pancasán, 2015; Interview President NICACENTRO, 2015; Interview Selmira Flores, 2015).

This discrepancy has to be seen in the context of the “básico de verano”, a milk quota that is based on the average volume of milk produced during the dry summer season. Only this volume is subjected to price stability throughout the year, whereas for the surplus produced in the rain season a lower price is paid (Interview ADDAC, 2015; Polvorosa Narváez, 2013, p. 117).¹⁵ In combination with discrepancies of lab results, collection centers accuse the pasteurization industry of putting up an act to push prices down. “Lo hacen como que no quieren leche, pero lo hacen para pagar menos”¹⁶ (Interview Manager Collection Center Pancasán, 2015).

¹⁵ According to (Interviews Producers in Matiguás, 2015) the price for exceeding volumes is 25-30% lower than the price of the “básico de verano”.

¹⁶ “They pretend that they don’t want the milk, but they do it to pay less” (Interview Manager Collection Center Pancasán, 2015, own translation).

The pasteurization industry possesses the power to set the basic rules for participating in the chain and to monitor the actors' ability to fulfill the established standards. They govern the chain on a legislative and on a judicial level. However, they leave it up to collection centers to govern proactively, meaning to support producers so that they may fulfill quality standards. The supply of necessary inputs and technical assistance is the responsibility of collection centers, thus they exert executive governance. The roles regarding the different dimensions of governance in the chain are efficiently distributed by the pasteurization industry and in their interest. The effectiveness of exerting the different forms of governance can be measured through the capacity of the collection center and the pasteurization industry to implement sanctions, for example, through excluding actors (Kaplinsky & Morris, 2001, pp. 30-32). As described above, the pasteurization industry has the power to employ quotas and pricing schemes and dictate acceptable qualities despite the criticisms of producers. Their lab results are acknowledged over those of the collection centers, clearly demonstrating the power the pasteurization industry wields as an effective lead firm. Simultaneously, collection centers possess the power to sanction, although to a lesser extent, and act as a lead firm for producers. Thus, different forms of coordination, or governance, in different segments of the value chain exist.

Bargaining power

A further feature to assess governance structure is price negotiation. In price negotiations, power asymmetries established through lead firms become clear and are thus an important dimension to understand how a value chain is organized.

The milk price is dependent on the milk quality and the time of year. The season is an important factor, as it indicates whether there is excess supply or not. With the trade liberalizations through the DR-CAFTA and the declining demand worldwide in 2015, the Nicaraguan dairy industry is characterized by a surplus in supply, weakening the bargaining position of cooperatives.

¿La cooperativa puede negociar los precios con la industria? Si, podemos negociar los precios, pero cuando existe un equilibrio en cuanto de la oferta y de la demanda. Pero en este momento la oferta es mucha mayor que la demanda de la industria. Entonces simplemente no tenemos ningún poder de negociación. La industria te paga como quisiera pagarte no puedes decir »no

me gusta el precio, me voy al otro lado». No había otro lado, no había otro grupo que podría pagar este leche.¹⁷(Interview President NICACENTRO, 2015)

The pasteurization industry sets the prices while collection centers and cooperatives have negligible power to negotiate them and thus act as price takers. “Estamos en la mano de la industria. Ellos determinan el precio.¹⁸ (...) Si la industria dice »mañana baja el precio por 50 Centavos por litro de leche« tenemos que aceptarlo. Entonces nosotros bajamos el precio para todos” (Interview Manager Collection Center El Jobo, 2015). The industry exploits and further establishes its position as lead firm through determining the price. Cooperatives have little power to reject the price as there are few other firms pasteurizing milk in Nicaragua. The situation resembles an oligopoly, where few firms dominate the market. This has led to, more or less, the same prices offered by the different firms:

El gerente de la Nilac se conoce con el gerente de la Perfecta, ese otro tiene comunicación con el de Centrolac y el otro tiene con Eskimo. Si usted analiza los precios, claro, nosotros tenemos algún contacto con las otras cooperativas y más o menos nos informamos cuánto están pagando. Entonces por lo general casi todos están pagando más o menos lo mismo.¹⁹
(Interview ADDAC, 2015)

Even if small price differences between firms exist, transaction costs usually exceed the benefit of switching firms. However, cooperatives have a certain scope to put pressure on their contracted pasteurization firms, for example, through calling and demanding answers for price differences (Interview ADDAC, 2015).

Loyalty and trust can be an important factor in the relationship between the pasteurization plant and the cooperative. The assurance that cooperatives do not switch firms in the case of small price difference is an incentive for pasteurization plants to provide advantages for cooperatives. For example, Nilac has sponsored the tanks of a newly opened collection center of ADDAC

¹⁷ „Can the cooperative negotiate prices with the industry?“ „Yes, we can negotiate prices, but only if there is a equilibrium between supply and demand. However, right now the supply is a lot higher than the demand of the industry. Therefore we simply have no power to negotiate. The industry pays you how they want and you can't say »I don't like the price, I am going to the other side«. There is no other side, there is no other group that can buy the milk” (Interview President NICACENTRO, 2015, own translation)

¹⁸ „We are in the hands of the industry. They determine the price. If they decide to lower the price by 50 Cents the liter milk we have to accept it. We then have to lower the price for everyone“ (Interview Manager Collection Center Pancasán, 2015, own translation).

¹⁹ “The manager of Nilac knows the manager of Perfecta, this own is in contact with the one of Centrolac and the other with Eskimo. When you analyze prices we of course are in contact with other cooperatives and know more or less how much they are getting paid. Therefore, in general everyone is paying more or less the same” (Interview Manager Collection Center El Jobo, 2015, own translation).

due to its long relationship with the collection center El Jobo (Interview ADDAC, 2015). Thus, discrepancies and lack of transparency regarding quality tests can threaten this relationship.

Trust is the basis of the relationship between producer and cooperative as well. Producers have to place confidence in cooperatives that they act in their best interest, negotiating the best prices. The data from the survey reveals that producers do not feel that they can influence prices, nor do they know how. They neither have the possibility to negotiate prices with cooperatives or collection centers, nor do small- and medium-sized producers know at all how prices are composed (Survey Producers in Matiguás, 2015). Thus, they have to accept and trust the cooperative's terms.

The flow of information between producers and the collection center or cooperative is usually asymmetric. Price changes are communicated via a note with the receipt or orally when milk is picked up or delivered to the collection center. There exist no firmed contracts about volumes or prices between the producer and the collection center or cooperative (Survey Producers in Matiguás, 2015). The same applies for the coordination of exchange between the collection center or cooperative and the industry. Their arrangements are based on bidding agreements; no formal contracts exist. “Actualmente los precios y los volúmenes lo acordamos [la cooperativa NICACENTRO con la industria] de la manera verba”²⁰ (Interview ADDAC, 2015). The beneficiary of this system is the industry that is able to dictate the prices they desire.

*La industria no quiere hacer por escrito un contrato porque no quieren fijarse. Simplemente ellos están en condiciones en este momento de fijar los precios que ellos quieran. Obviamente estamos en presión. Para ellos es mucho más conviene como las cosas están.*²¹ (Interview ADDAC, 2015)

To address this problem, a group has been founded on a national level comprising the presidents of the four largest dairy cooperatives in Nicaragua, the managers of the dairy industry, representatives of the government, and other dairy organizations. Their goal is to make Nicaragua's dairy sector more competitive, to raise milk consumption in Nicaragua, the second lowest in Latin America, and to formalize the relationship between cooperatives and the industry. This formalization shall address prices, volumes, and quality. To account for the

²⁰ “Currently we decide on prices verbally” (Interview ADDAC, 2015, own translation).

²¹ “The industry doesn't want a written contract because they don't want to be tied up. Right now they are in the position to fix the prices they want. Obviously we are under pressure. For them it is a lot more convenient how things are.” (Interview President NICACENTRO, 2015, own translation).

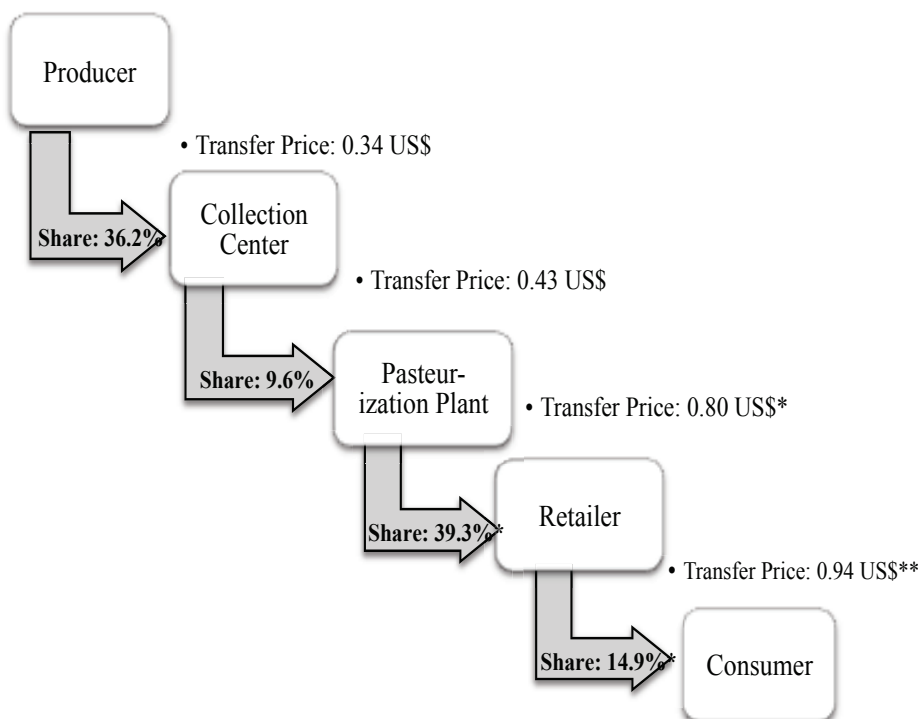
discrepancies of lab results, which have been causing disagreements between cooperatives and the industry, an impartial arbitrator is demanded that would act as a supervisor. The setting up of a reference laboratory would be another step to formalize relationships and prevent dissents (Interview President NICACENTRO, 2015).

Value-added

Negotiations have only started; this could be, however, a step towards restricting the power of the pasteurization industry as a lead firm. Hand in hand with a restriction of power goes the decrease of the share of the value added. According to Gereffi, Humphrey, Kaplinsky, and Sturgeon (2001, p. 4) the authority of lead firms is established through their market power, measured in their market share and their control of stages of the chain. The latter has been proven through their power to exclude actors and dictate prices and quality requirements. As a proxy for the former the value-added is used here. To find out where and how much value is added is a crucial component of governance analysis. Powerful lead firms can thus be identified because they can determine the prices at which products are being exchanged and can arrange the distribution of value-added in their favor.

Within the framework of the research, the distribution of prices in the dairy value chain is determined. The analysis does not raise the claim to be representative nor comprehensive. It was carried out in the rainy winter season; however, precipitation, due to El Niño, and thus milk production remained behind the experiences of previous years.

As can be seen in figure 8, the greatest share of the final price remains with the pasteurization industry: 39.3 percent. The ability to lock in the highest share of value in the dairy chain can be attributed to the industries' technological capabilities to transform milk into a safer product through pasteurization and processing. Thus it is based on the improvement of the intrinsic characteristics of the product. Additionally for other firms, high entry barriers due to large investment costs exist.



* Estimation based on Flores et. alia, 2011

** Average of milk price in supermarkets in Managua

Figure 8. Price distribution of the industrial dairy chain based on the prices of NICACENTRO

Source: own calculation based on interviews with representatives of Collection Centers and Cooperatives

The second greatest share, 36.2 percent, remains with producers. While pasteurization plants and producers together claim about three quarters of the final price, the remaining quarter is distributed among retailers and the collection centers. The retailers' share is about five percent higher than that of the collection centers. However, "their level of value added is pre-determined by the pasteurization industry which indicates and suggests the final consumer prices for its dairy products" (Flores et al., 2011, p. 79). The local competition forces many "pulperías" to charge the suggested retail price.

Collection centers keep the lowest share; they are not run to make profits (except for the private ones), but to improve the price for producers. Thus they subtract from the price given by the industry only the amount necessary to operate the collection center (approximately 5 US\$-Cents per liter of milk) (Interview Manager Collection Center El Jobo, 2015).

The market structure of the investigated dairy value chain resembles a bilateral oligopoly (Polvorosa Narváez, 2013, p. 56). An oligopoly because many producers face few cooperatives, and respectively these cooperatives face even fewer pasteurization firms. These firms follow a cooperative strategy through maintaining more or less the same prices. (Heertje & Wenzel, 2008, pp. 158-161). This oligopoly can be considered bilateral because many producers and consumers exist facing few cooperatives and pasteurization firms. The relationship between the pasteurization industry and cooperatives is characterized by tight coordination, for example, regarding quality and safety standards. The pasteurization industry has taken over the role of a lead firm, dictating the terms of participation, and collection centers act as their executive arm through communicating and enforcing these on producers. These producers have little to no power to change or set terms. The overall form of governance of the chain comes closest to a captive governance-structure. Gereffi et al. (2001) describe that in this governance type lead firms dominate over dependent suppliers. Captive suppliers only fulfill a narrow range of tasks, for example, they are engaged in simple assembly, while lead firms take over value-adding activities such as the technical processing of the product. This assembles the dairy value chain, in which cooperatives function as mere milk collectors selling to the industry that has the technological capabilities to process the good. The industry as a lead firm exerts a high level of direct control over cooperatives. Such behavior proves a high degree of power asymmetry that is accompanied with explicit coordination. A further form of power asymmetry shaping the industrial dairy value chain can be observed along gender relations. How these are shaped is explained hereafter.

Chapter 5. The presence or absence of women in the industrial value chain

This chapter deals with gender dynamics in the industrial value chain. It starts with giving an overview of the historically evolved image and role of women in dairy farming to better understand the conditions of their participation. Gender influences all aspects ranging from social relations to the production process. It determines how women appear, are treated and behave, not only in the public but also the private sphere. In the following these dynamics are addressed and how they have changed over time. Gender dynamics are not only produced and reproduced through social actors; institutions shape them as well, just as gender is embedded in them. In the dairy sector cooperatives represent such institutions. Thus, it is asked what role they play in shaping the terms of participation of women in the industrial dairy chain.

5.1 The development of female roles in livestock farming: An introduction

Gender, as a system of ideas, shapes and creates the identities of men and women in different spaces. The social interaction between these identities takes place before, during, and after production processes, and the social norms that influence these processes are constantly produced and reproduced. In Nicaragua's agricultural sector they are based on the dominant patriarchal ideology inherent in the society, which is a result of its colonial history.

After their arrival the Spaniards introduced cattle farming in Nicaragua, and with it a Eurocentric and androcentric system that intrinsically disempowered women, poor groups, indigenous people, and mestizos (Aquino & Támez, 1998, p. 31). The patriarchal, masculine image that was developed in this time distanced itself from the characteristics of groups that were perceived as weak. The livestock farmer became the prototype of the patriarchal, masculine man. His ownership of land, cattle, and horses were symbols of power; he had the capability to dominate and sexually exploit women, children, and indigenous people. He rejected and destructed everything that was outside Spanish norms and answered with violence against everyone that questioned his honor, power, and manliness. Landowners could not only decide about the use of land, but also about the people living on it. A patriarch was born, who turned male (indigenous) workers into servants and unskilled laborers. Two male images arose: The one of the dominant man and the subordinate one, and thus a culture was created in which not only differences between men and women were established, but also between types of men; these ideas and practices continue to exist in postcolonial times (Flores, 2015, p. 163).

Recent case studies show that the traditional prototype has been adapted to modern times. Farmers have traded their sombrero for a baseball cap, the horse for a motorbike or 4-wheel drive, and they leave their leather boots at home (Flores, 2015, p. 164). However, the female image has not undergone much change. The typical woman in the countryside is still described as

*una ama de casa (...), en su casa siempre, con el pelo largo pero recogido, tal vez con sandalias o con chinelas y con tres o cuatro hijos, con ellos, yendo también a las reuniones. Ese es el estereotipo que hay de la mujer rural, no es la productora con un machete o con un lazo o la productora con un caballo.*²² (Interview Selmira Flores, 2015)

Women remain in the private sphere, unrecognized as milk producers although they contribute an indispensable part of Nicaragua's dairy sector.

5.2 The conditions of female participation

Cattle farming is dominated by male presence as “[l]a ganadería en Nicaragua es una actividad históricamente manejada por hombres” (Interview President NICACENTRO, 2015). Thus little attention is given to female participation and women's contribution to milk production. Women's access to resources and services is restricted, traditional gender roles in the household are unquestioned, and they remain underrepresented in the public sphere.

In the following the different barriers women encounter in the dairy value chain are addressed. To assess these barriers, the capital endowments of women are analyzed, resulting in four aspects: Women's access to and, most of all, control over physical and natural capital, their access to services enhancing their human and social capital, their control over financial resources, and the traditional division of labor. Further, it is described how the participation of women has changed with time and what role cooperatives have played in this development. To this end, it is endeavored to understand the realities of life for 31 women that are linked to the collection centers of NICACENTRO and Flor de Pancasán. It has to be borne in mind that women as producers are not a homogenous group (nor are male producers). Not all women living on cattle farms face the same situation; every living situation is different, every

²² “a housewife, always at home, with long, tied back hair, maybe with sandals or flip-flops and with three or four children, and with them going to the reunions as well. This is the stereotype that exists of the rural women, not the female producer with the machete or a lasso or the female producer on a horse” (Interview Selmira Flores, 2015, own translation).

interpersonal relationship follows distinctive dynamics, and every behavior is based on disparate contexts. In the following these contexts are examined and correlated with females' visibility, acceptance, and participation in the chain. The great challenge while doing this is determining how to understand and measure the reality of internal gender relations in the household, how these shape the way women enter the chain, and how far and in which manner women can proceed in cooperatives.

5.2.1 Characterization of female producers

Every woman either through being the household head and owner of land and cattle, or through being wife, daughter, granddaughter, etc., to a cattle farmer contributes to milk production. However, female producers referred to in the following are those women bringing milk to collection centers in their name, as they are the focus of the case study. Nonetheless, the work of all other women related to cattle farming is considered equally important and valuable in the dairy value chain.

The case study focused on the lives of 29 women selling milk to collection centers in their name; twenty-two are members of the corresponding cooperative. Their average age is 49 years, and the majority have been members of Flor de Pancasán or NICACENTRO since their foundation (68.4 percent). The average volume of milk brought to the collection center per producer is approximately 40 liters, which is the capacity of one "pichinga", one milk can. Women bring in less milk on average, only 28.5 liters. The greatest portion of women sells 11-20 liters during the rain season as can be seen in figure 9, which correlates to the possession of three to five milking cows (Survey Producers in Matiguás, 2015). The daily income that results from this production lies between 3.45 US\$ and 6.30 US\$²³, and not all producers have the possibility to increase it through the cultivation of beans and café. Looking at female household heads in Matiguás that deliver only to the industrial chain, their low level of production in comparison to men's becomes visible. Families with a male household head have on average 17 milking cows, while families with a female household head have only nine; this accounts for a difference of 24 liters daily (Organizaciones de Zona Seca y Zona Alta de Nicaragua, 2015). Clearly, this shows that female producers are more prone to face severe poverty than male producers.

²³ The calculation is based on the average price for quality A milk between Flor de Pancasán and NICACENTRO and on the exchange rate on October, 1st 2015.

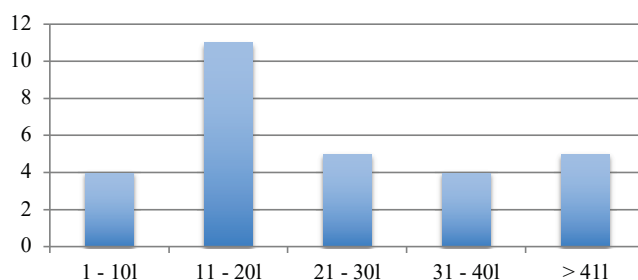


Figure 9. Average volume of milk sold by women to the collection centers

Source: own elaboration after survey data

To assess women's levels of participation in the dairy chain it is essential to understand familiar relations on the household level. As a first step, it is important to know if there is a male, in form of a husband, father, or son, living at home. Seventeen of the encountered female producers are married, eight are single or divorced, and four women are widowed. This contradicts the common image and descriptions in the literature, which states that the majority of women actively involved in the dairy value chain are widowed (Flores, 2015; Interview President NICACENTRO, 2015; Polvorosa Narváez, 2013).

The family status is an important factor in how women's participation in the chain is accepted and what roles are assigned to her. However, ownership and decision-making power, as well as access and control over the previously mentioned capital endowments, are influential as well. On the basis of their composition five different levels of participation can be identified:

1. The first level describes the realities of widowed women in the chain. They gain a special status in the cooperative and community because they are accepted in the same way as men; their role as producer is widely acknowledged, smoothing their way into positions in the cooperative. Some men even see a woman being widowed as the only way she can participate as a producer in the chain (Interviews Producers in Matiguás, 2015). Widowed women are in charge of their own land and cattle, but the sons are often regarded in decision-making processes as well. They are also the ones taking over jobs on the farms if no workers are available.

2. Single or divorced female producers can be assigned to the second level of participation. They are perceived and acknowledged as the head of the household, as there is no male residing at home taking over this position. They are (usually) in possession of land and cattle, however their decision-making power over these resources may be limited. Every interviewed woman has at least one child, and usually the son played an important role in deciding on the use and sale of land and cattle. The living reality of single or divorced women resembles that of widows'; however, widows tend to be more accepted by male producers than single or divorced women.
3. The third level refers to married women that have taken over administrative tasks. This occurs when the husband is not able, for example, because of his health or his lack of interest in cattle farming. These women manage the farm and have their own cattle, land, or both, and the male presence influences decision-making processes and their perception in the cooperative and community. Thus women are never seen (and do not see themselves) as the household head as long as the father or husband living at home.
4. The fourth level includes women that participate on equal terms with their husband. Women work, discuss, and decide together with their spouse issues regarding the farm. Cattle and land are in the possession of both, and decisions about the sale of milk, cattle, and land are met together. Women that have their own cattle or land, or both, can decide independently from the husbands' opinions about their sale. In one case this self-determination goes so far that the woman is a very active member of Flor de Pancasán, while her husband belonged to and sold his cows' milk to NICACENTRO.
5. The last level of participation refers to women who, despite having their own land, cattle, or both, do not have access to and decision-making power over them. They work at their husbands' sides, but neither take part in decisions about the production process, nor are they familiar with handling the cattle.

This characterization is developed based on my interviews on women's access to resources and services, their decision-making power over these resources, household dynamics, and the perception and treatment of women in cooperatives, collection centers, and the community. Hereafter, these different aspects are described in detail.

5.2.2 Access to resources and their control

The two most important natural resources for participation are land and cattle. However, having access to one's own physical and natural capitals is not indicative of possessing actual control over them. Therefore, it is never enough to analyze an actors' ownership, but also their influence over named resources must be considered. Tangible resources are not the only ones used for production. Intangible ones such as information, knowledge, collaboration, solidarity, and motivation are crucial as well (Flores, 2015, p. 167). In the following, women's access and control over tangible resources like land, cattle, production, and money, and intangible resources, in form of services, are described.

Access to and control over resources

To visibly participate in the dairy value chain, women must bring in milk to collection centers in their name either as non-members or, for better conditions, as members. Eventhough, not officially a requirement, the ownership of cattle or land is seen as essential. In this case study, all women bringing in milk possessed either land or cattle or both, and for approximately half of them it is a joint ownership with their husband. These women constitute the few exceptions (see table 4, page 40) as the ownership of land and especially cattle is traditionally the domain of men. Even if women are in possession of land they own it under worse conditions than men: The case study showed that 23 percent of female landowners had no official land title, whereas this percentage came to only 13.3 percent for male landowners. Access to land is gained through three different mechanisms: buying land directly, inheriting it, or obtaining it through government programs. In the north of Matiguás most female producers bought their land, only few inherited it, and even fewer received the land from the previously described land reforms of the government (see chapter 4.1) (Survey Producers in Matiguás, 2015). This is due to the custom that land is inherited by male family members, most often sons or even the husbands of daughters. Only few exceptions exist in which this usual praxis is disrupted, for example, when the son falls in disgrace (Flores, 2015, p. 171).

Ownership over land cannot be equated with control over that land, at least not for women. "Hay algunas que tienen recursos y no los controlan; sobre la tierra tienen menos posibilidades de decidir"²⁴ (Interview Selmira Flores, 2015). This becomes explicit when asking about the

²⁴ "There are some women who have their own resources and do not control them; over land they have less possibilities to decide" (Interview Selmira Flores, 2015, own translation).

sale and use of the land. The majority of female landowners cannot independently decide about the sale of land (64.3 percent). In some cases women have reported that it is solely the husbands' decision. Women have even less decision-making power when it comes to the cultivation of land: Only one sixth can decide this matter on their own (Survey Producers in Matiguás, 2015). These numbers prove that it is crucial to differentiate between the access to a resource and the control over it.

The same divergence between ownership and control appears regarding cattle. Only about one half of female producers (60 percent) can decide on their own if they want to sell their cattle or not. Looking solely at married women it becomes clear that their control over their own resources is even more limited despite their ownership: In only three out nine cases it is the woman's decision to sell or not to sell her own cows. For the other two thirds of the cases, either the husband decides on his own or they make the decision together. "Yo tengo de ganado, tengo mi ternero, tengo mi tierra, pero no tomo la decisión solo yo, tomamos entre dos"²⁵ (Focus Group, 2015). However, the same does not apply vice versa: A wife cannot decide solely over her husband's cattle, and very rarely are decisions regarding his cows made together (Survey Producers in Matiguás, 2015).

Some men state, as the reason for women's limited decision-making power, that they don't have the necessary knowledge to handle and decide over cattle (Interviews Producers in Matiguás, 2015). However, this cannot be confirmed; women are well aware of the value of their cattle and how to look after it. One member of Flor de Pancasán even declared "en mi caso yo sé más sobre trabajos relacionados con el ganado que mi esposo"²⁶ (Focus Group, 2015). There exists no reason why women should not control their own cattle; "mujeres tienen menos posibilidades de incidir, pero ellas si pueden decidir sobre si la vaca se vende, sobre el destino de la vaca, el destino y la producción de la leche"²⁷ (Interview Selmira Flores, 2015). The reasons that some women express doubts about their knowledge have to be sought in the context in which women live and work. Men dominate not only cooperatives but also the

²⁵ "I have my cattle, I have my calves, I have my land, but I don't make decisions on my own, we make them together" (Focus Group, 2015, own translation).

²⁶ "In my case I know more about cattle related work than my husband" (Focus Group, 2015, own translation).

²⁷ "Women have less possibilities to make decisions, but they are able to decide over the sale of cows, over the fate of the cow, the sale, and production of milk" (Interview Selmira Flores, 2015, own translation).

household, and “la actividad ganadera está orientada a hombres y hay bastante machismo sobre todo en este sector”²⁸ (Interview President NICACENTRO, 2015).

Access and control over production

Milk is the most important income for all interviewed producers. About half of them additionally cultivate corn, beans, or coffee to improve their income, next to the occasional sale of cattle. However, these incomes cannot surpass the weekly inflow of money generated through milk. Only one third of the married women are solely responsible for the sale of milk from her cattle. As the one in charge of the sale also administers the income, it is an important activity and demonstrates the exclusion of women from financial resources.

Access to and control over services

Information is a key resource and determines the ability to participate. Four main information channels to accumulate knowledge about milk production could be identified: informal conversations, reunions, technical assistance, and trainings. The latter two are offered by collection centers and cooperatives. Technical assistance is a service provided to members and non-members of the cooperative. Because technical assistance provides women with access to information in the private sphere, it presents a special possibility for women to acquire knowledge in a familiar and confidential, although not always conflict-free, sphere. Of the interviewed women, less than half have received technical assistance (41 percent). Comparable with access to and control over resources, being officially visited by technicians cannot be equalized with receiving this service.

Entrevistadora: Cuando llega un técnico, ¿con quién quiere hablar?

Mujer productora: Con mi hijo.

Entrevistadora: Y ¿cuenta con tu opinión?

*Mujer productora: No, habla solo con él.*²⁹

(Interviews Producers in Matiguás, 2015)

²⁸ “Cattle farming is a male oriented domain and there is a lot of machismo, most of all in this sector” (Interview President NICACENTRO, 2015, own translation).

²⁹ Interviewer: “When the technician comes, with whom does he want to talk?” Female producer: “With my son.” Interviewer: “And does he listen to your opinion?”. Female producer: “No, he only talks to him” (Interviews Producers in Matiguás, 2015, own translation).

This behavior has been repeatedly described, and the president of the cooperative explains this discriminating treatment by stating “es que por costumbre, esperamos que el varón sea el que este al frente”³⁰ (Interview President Flor de Pancasán, 2015). Another reason women may not receive this service is the jealousy of the husband, who may dislike the idea of the wife being alone with the technician on the farm (Focus Group, 2015). Through this behavior gender barriers become visible and inhibit equal access to information. However, it must be added that this discriminating treatment has occurred in several, although not the majority, of cases.

Other avenues of access to information are trainings and reunions. Trainings usually address better milking practices or relevant developments for cattle farming, and reunions discuss the situation of the cooperative as well as community developments. While trainings are organized by the cooperative, reunions can be on an either cooperative or community level. Both have in common an exchange of information in the public sphere, contrary to technical assistance, where not only household dynamics but also gender-related community dynamics influence engagements and experiences. These dynamics can prevent women from participating; for example, one female member of a cooperative said about reunions: “son capacitaciones de varones, de productores, solo lo invitan a el [su esposo]”(Interviews Producers in Matiguás, 2015). This statement reflects the different factors inhibiting equal participation in trainings (and reunions). First, the perception is that in trainings and reunions only male presence is asked. Only men are considered to participate, making a single woman feel uncomfortable: “No me gusta participar. A veces me da pena, son puros varones todo”³¹ (Interviews Producers in Matiguás, 2015). Second, some men dominating the household dislike their wives or daughters to actively participate in public. “A mi no me gusta ir a las reuniones de NICACENTRO, mi papa me dijo »no va son solo hombres«.”³² (Interviews Producers in Matiguás, 2015) And third, the miscommunication from cooperatives and their lack of integrating and directly motivating women to participate presents a further barrier. Thus, some women do not benefit from the services, or are forced not to, and husbands or sons participate instead, as is proven in the case study. Additionally, one common response to the question of what prevents women from going, apart from the above, is the lack of time and interest. While

³⁰ “it is out of habit, that we expect that the man is in charge” (Interview President Flor de Pancasán, 2015, own translation).

³¹ “I don’t like to participate. Sometimes it bothers me, that there are only men” (Interviews Producers in Matiguás, 2015, own translation).
(Interviews Producers in Matiguás, 2015, own translation).

³² “I don’t like to go to the reunions from NICACENTRO, my father says »don’t go, there are only men«” (Interviews Producers in Matiguás, 2015, own translation).

the lack of time is attributed to childcare and with it confinement of women to their houses, explanations of the previous three barriers are found to be concealed after further questioning the lack of interest (Interviews Producers in Matiguás, 2015; Survey Producers in Matiguás, 2015).

Another issue not to be neglected is women's access to financial resources, through credit, for example. While the literature hints at worse access to credit for women than for men (Flores, 2015, p. 183), the results of the case study cannot support this finding; as a minimum there is no direct discrimination to be found. All women stated that they have experienced no gender barrier regarding obtaining credit (Interviews Producers in Matiguás, 2015), although the numbers show that only half of them have received one. However, there exists no sufficient data to compare this result to the situation of male producers. Because the access to credit from a cooperative depends on the producers' payment histories and production capacity, there is no direct barrier found; as women tend to have less land, fewer cattle, and thus lower production the amount of credit they receive can be expected to be lower on average. Moreover, granting a credit to women does not mean she is in charge of administering the money (Interview ADDAC).

Access to and control over money

Money is a key resource and it constitutes one of the major barriers that married female producer face (Flores, 2015, p. 178). Inequality within the household manifests itself in the control over financial resources. In half of the cases solely the husband administers income and decides how to resolve financial issues for the family (46.7 percent), although the funds are generated by the sale of milk in the woman's name (Survey Producers in Matiguás, 2015). Not only is the milk derived from the women's cows and women have actively contributed to the production process, but they have also proven their capacity to administer financial resources better: "las mujeres invierten mejor el dinero, ahorran más que los hombres"³³ (Interview President Flor de Pancasán, 2015).

³³ "Women are better in investing money, they save more than men" (Interview President Flor de Pancasán, 2015, own translation).

5.2.3 Traditional division of labor

Women's contributions to milk production remain invisible although they realize 12 out of the 24 necessary working steps (Flores & Torres, 2012, p. 11). Their work is not recognized partly because it takes place in the domestic sphere. While men separate, milk, and feed the cattle, women, for example, clean the milk cans, a task that does not require leaving the house. Women are exclusively responsible for domestic tasks like cleaning, cooking, taking care of children, and the production of the cheese "cuajada". Rarely do women take on tasks that involve handling the cattle directly such as milking (Survey Producers in Matiguás, 2015). When they do it is because they come from families where the male household head encourages this behavior. However, jobs that require leaving the house for more than a short period of time, for example, pasture maintenance or the transport of the milk, are refused to women as it would conflict with caring for children and fulfilling household chores.

Cattle-farming is seen to require physical strength; something that male producers do not attribute to women, who are thus left with less demanding tasks, often the care of poultry and pigs in the patio. This masculine structure prevents the recognition of women's contribution to the family's livelihood, and thus the acceptance of female producers in the society remains low.

While the division of labor is described along the two different sexes this is not the only category by which it is influenced. For example, class is another structuring factor. In cases where families have more financial resources at their disposal, they delegate jobs. "Si hay dinero para contratar mano de obra, se delega en los contratados el trabajo manual."³⁴ (Flores, 2015, p. 183) These families tend to live in the city, not on the farm, and women usually neither participate in trainings and reunions, nor do they need to take care of children.

To sum up there are various barriers denying the visible participation in the dairy value chain on a producers level. Most of the here described are related to gender. Access to resources, production, services and financial resources are areas where gender inequalities became visible. Two essential resources with which a regular income is generated are land and cattle. Ownership over them is a privilege that only few women in the countryside enjoy. However, ownership cannot be equalized with control. Deere, Alvarado, and Twyman (2010, p. 8) have

³⁴ "If there is enough money to hire somebody, manual work is delegated to contracted workers" (Flores, 2015, p. 183, own translation).

described that in Nicaragua only half of female landowners (8.8 percent out of 16.9 percent female landowners) are able to decide by themselves about their own land. This is in accordance with the results of the case study where 64 percent of female landowners are not the sole decision-makers. Thus women often face less decision-making power when it comes to their own resources than men do, not only regarding land but also regarding cattle. This tendency can be traced to the patriarchal system dominant in Nicaragua and to the closely related traditional image of cattle farming, where women are historically excluded and invisible. Despite contributing an important part to milk production, their work as producers is not recognized. The way the distribution of labor is organized allows to draw conclusions to the spacial and financial sphere of influence. It follows traditional gender roles, where women are assigned reproductive and men productive tasks. However, there can be observed a trend towards joint decision making in the productive sphere as well. This rising emancipation can be associated with women leaving the private sphere and overcoming their restricted access to information through participating in trainings, reunions and receiving technical assistance. Factors, inhibiting the access to these services are caused by the male dominance in the dairy sector and public sphere in general, the lack of time women face through the fulfilling of reproductive tasks along with in visible tasks in the productive sphere, the failure of cooperatives to motivate and include women, and household dynamics. What role gender dynamics in the private sphere play regarding the participation of women in the dairy value chain is described hereafter.

5.3 Gender dynamics in the chain

In order to understand the womens' involvement in the dairy value chain not only their participation in the public sphere has to be understood, but also gender dynamics in the private sphere, the household. In the following reasons for the low participation of women are discussed, first caused by interfamily dynamics and second by the male dominance in the public sphere.

5.3.1 Gender dynamics in the private sphere

Gender dynamics in the household influence the access to and control of resources, inputs, money, the division of labor, and overall interpersonal relations that again influence named aspects. They decide the female participation in the public sphere.

*El hogar es el espacio donde las diferencias de género se marcan, se afianzan o se modifican. Esas ideas traducidas en normas y reglas con las que se rigen las familias que participan en la ganadería. Van a determinar si las mujeres pueden o no negociar su disponibilidad de tiempo para el trabajo productivo en la finca – la casa, si tienen o no libertad para participar en la esfera pública del mercado.*³⁵ (Flores, 2015, p. 166)

Thus, to achieve changes for women, as actors in a dynamic field, it has to be understood how they function on a household level. In every household a certain hierarchy is established, influencing the production not only with tangible resources but also with intangible ones. The flow of information is especially crucial for the improved participation of women. In households where married women do not have access to reunions, trainings, or technical assistance the only source of information remaining is the husband. However, the data revealed that there is little to no exchange of information regarding milk production between spouses. Husbands argue that “mi esposa no está interesada”³⁶ (Interview Producer), but rarely is it asked why she is not interested, or rather if they will allow her to be interested as domestic violence and jealousy influence this dynamic. Often male dominance is exerted via domestic violence, which is a big problem in the countryside: “en el campo es mucha violencia domestica, pero las mujeres lo esconden, porque lo viven con vergüenza”³⁷ (Interview Selmira Flores, 2015).

None of the wives of the interviewed male producers accompanies her husband to reunions, though they are welcomed as well. Thus, most women are trapped in their homes, leaving home on average only once a month (Interviews Producers in Matiguás, 2015; Survey Producers in Matiguás, 2015).

Women are overburdened with work; the results of a focus group conducted in the region showed that they work on average two hours more than men (Lovo López & Mora Benard, 2014, p. 17). They neither receive a salary, nor do their husbands appreciate their work. Further, they are not seen as active contributors to milk production because all work done in the

³⁵ “The household is the space where gender differences are manifested, are reinforced, or get modified. These ideas are translated into norms and rules that dominate the families that participate in cattle farming. They will determine if women can or not negotiate their availability of time for productive work on the farm – the house, if they have the liberty or not to participate in the public sphere of the market” (Flores, 2015, p. 166, own translation).

³⁶ “My wife is not interested” (Interviews Producers in Matiguás, 2015, own translation).

³⁷ “In the countryside there is a lot of domestic violence, but women try to hide it because they feel ashamed” (Interview Selmira Flores, 2015, own translation).

domestic space is not seen as a part of cattle-farming: “La producción de cuajada no se valoran como parte de la ganadería, no es valorado porque la producción tiene lugar en la cocina”³⁸ (Focus Group, 2015). The type and amount of work ties women to their houses, inhibiting them from leaving more often and having a more active social life. This combination restricts women’s access to technical knowledge, information about production, and the market, which impedes their participation in the public sphere.

5.3.2 Participation in the public sphere

Gender barriers manifest themselves in the underrepresentation of women in the public sphere; in the dairy sector this becomes visible, above all, in trainings and reunions. Women have an unquestionably lower participation rate. If present, they talk less than men, appear to be more timid, and do not express their opinion as often as men (Interviews Producers in Matiguás, 2015). It is not because they are less interested, but because a hostile environment prevails in cooperatives and on reunions (Interview Selmira Flores, 2015). Men do not only physically dominate reunions and trainings, they also create a male climate through language, group building, and body language. They control the discourse, the space, and the time, thus creating an atmosphere in which women are not heard. Additionally women struggle to be self-assertive in this kind of environment as many are ignored at home on a daily basis: “Todos los días te están diciendo que no servís, todos los días te ignoran”³⁹ (Interview Selmira Flores, 2015). However, a few women stand out who freely express their opinion and participate without hesitation. They report that to be taken seriously at reunions they had to prove the same knowledge regarding milk production as men (Focus Group, 2015).

However, this environment is not unchangeable; it is socially constructed and thus adaptable. A highly influential factor is the gender-sensitivity of cooperatives, and thus not all reunions and trainings are characterized through hostility. While some cooperatives and their members apparently fail to create a friendly and open climate, others succeed, and in these women feel that they can express their opinion freely and are taken seriously.

³⁸ “The production of cuajada is not valued as part of milk production, it is not valued because the production takes place in the kitchen” (Focus Group, 2015, own translation).

³⁹ “They tell you every day that you are worth nothing, they daily ignore you” (Interview Selmira Flores, 2015, own translation).

An important step towards gender equality and the improvement of women's visibility as producers in the dairy sector is the occupation of decision-making positions. None of the dairy cooperatives in Nicaragua has a female president, and women are underrepresented in decision-making positions in cooperatives. However, women are reluctant to take positions when offered because for them it means additional work, as they are not released from fulfilling their everyday obligations. Time is the greatest inhibiting factor for women to take over positions when offered. Especially single mothers encounter this barrier as no childcare service is provided by the cooperatives, and most reunions take place in the morning. Thus it is almost impossible for women to take over positions that oblige them to be present.

The number of women in cooperatives and in decision-making positions is only an indication of their involvement; it does not represent their level of actual participation, however, and the terms to which they are engaged. One aspect of the acceptance of women by men is their adaption to the model of male dominance. Women have to adapt to the male dominated space of cattle farming; the space does not comply with the entry of women. To become accepted and respected, women take on male symbols because it is "la única manera de hacerse respetar, porque como los otros solo entienden el lenguaje masculino"⁴⁰ (Interview Selmira Flores, 2015). For example, women raise their voices, sometimes they even have to yell to feel heard by men. Some women play with their appearance as well; they put on pants instead of skirts, they put on boots instead of sandals, and some even put on a hat or a cap, although "normalmente las mujeres acá no usamos sombrero, ni gorra, porque ese es más un atuendo masculino"⁴¹ (Interview Selmira Flores, 2015). Others ignore this behavior, but in this manner both types gradually modify norms and roles that structure the social space.

5.3.3 Gender dynamics over time

Dynamics are characterized by changes and activity; thus, describing gender dynamics captures not only the momentum but also the developments that led to the present state. In context of the development of female roles in milk production a slight change towards more participation is observable. Women in Nicaragua have gained rights they did not have 50 years ago. The tendency to equality found its way not only on a legal level but in households as well:

⁴⁰ "the only way to be respected, because the others only understand the masculine language" (Interview Selmira Flores, 2015, own translation).

⁴¹ "normally the women there do not use a hat nor a cap, since it is more a male outfit" (Interview Selmira Flores, 2015, own translation).

*Yo recuerdo cuando trabajaba, cuarenta años con ese hombre y yo no tenía derecho ni a cinco reales. Aunque quisiera comerme un poquito de pan no me lo podía comer. Y como sólo él estaba apuntado en el banco, sólo él podía sacar el dinero. Y ahora, yo tengo mis realitos. Los reparto entre todos, cada quien va a comprar lo que quiere comer, lo que se quiere poner, lo que quiere beber.*⁴² (Interviews Producers in Matiguás, 2015)

Women not only gained rights on paper, but more equal relationships became established, fostering female participation. “Antes no tomaban en cuenta a las mujeres y ahora sí. Antes la mujer no podía participar, no tenía los mismos derechos”⁴³ (Interviews Producers in Matiguás, 2015). With the development of female rights women became able and were allowed to leave their houses and enter the public sphere. “Ya no está solo encerrada en la casa”⁴⁴ (Interviews Producers in Matiguás, 2015). Women have begun to enter the space of cooperatives. From no involvement at all, their numbers increased, they go to reunions and some have even taken up offices. A necessary step towards this development was that women have become organized. To foster networking one has to understand the underlying causes making this change possible on a household level. Comparing the context in which very engaged women live, one can identify one thing in common: Their husbands or fathers are more open towards gender equality and accept their wives or daughters as equals. They do not only approve their daughters’ or wives’ participation in activities in the cooperative, they also encourage them to make decisions on their own. These men, again, share the lack of a father figure when growing up, probably making them more sensitive to women’s subdominant positions in the dairy value chain (Interview Selmira Flores, 2015; Interviews Producers in Matiguás, 2015).

Not on a household level, nevertheless important are actions taken by cooperatives to address gender-issues. While some cooperatives have specifically encouraged women to actively participate, others have ignored the issue. The consequence of this practice becomes evident in the diverging female participation and involvement in the cooperatives.

⁴² “I remember how it was, when I worked 40 years with this man and I had no rights at all. Every time I wanted to eat a piece of bread, I could not eat it. And since only he was registered at the bank, only he could withdraw money. And now, I have my own resources. I split it between everybody, everyone can buy whatever they want to eat, what they want to wear, or what they want to drink” (Interviews Producers in Matiguás, 2015, own translation).

⁴³ “Years ago women were not taken into account, but now they are. In the past the women could not participate, she did not have the same rights” (Interviews Producers in Matiguás, 2015, own translation).

⁴⁴ “I am not locked in the house anymore.” (Interview Producer).

5.4 A Comparison of the cooperatives NICACENTRO and Flor de Pancasán regarding their gender-sensitivity

Dairy cooperatives in Nicaragua approach the topic of gender very differently in their attitude, structure, and strategy. The two compared cooperatives show that the efforts to include female producers in the dairy sector can follow very different paths. While NICACENTRO ignores the concerns of women, Flor de Pancasán, driven by ADDAC, identifies the inclusion of women as one of their main concerns. In the following the two different gender policies are contrasted and their consequences are made evident.

NICACENTRO is not equipped with any gender-sensitive strategy. They have done nothing since its existence to explicitly target and include women. While women were among the first members when founding the cooperative, they did not occupy any decision-making positions in that time nor have many women achieved such a position today. According to the president, the cooperative behaves following the principle “igual es igual”⁴⁵ (Interview President NICACENTRO, 2015). Meaning that all are treated officially the same way, there exists no preference of men, and explicit support for women is not intended nor seen as necessary. That women face worse access to all resources and almost all services to begin with, presenting a barrier for their participation, is neglected. Gender and equal rights are neither addressed in trainings, nor reunions. Moreover, the cooperative neglects to actively integrate a very important and large group of female producers: the wives of male members. While the number of women able to participate in the value chain as members or deliver milk in their names is very limited, the wives of male producers present a large group, and their living situation can be indirectly influenced and improved through their husbands’.

ADDAC, and with it Flor de Pancasán, has recognized this potential and takes a very different direction than NICACENTRO. For example, wives of male members are welcomed at reunions (Interview ADDAC, 2015). Female participation is seen as valuable for the cooperative and has to be encouraged (Interview President Flor de Pancasán, 2015). This attitude and strategy results in a high participation of women in cooperatives and in collection centers, at least compared to other cooperatives as can be seen in table 5. While in NICACENTRO only 13 percent of all members are female, Flor de Pancasán numbers are almost three times higher, 37 percent, making it one of the dairy cooperatives with the highest female participation.

⁴⁵ “everyone is treated equally” (Interview President NICACENTRO, 2015, own translation).

However, some of the differences might be attributed to the strong coffee and cacao sector in the cooperative, a sector where female participation is more common than in cattle farming.

Table 5. Membership in relation to gender

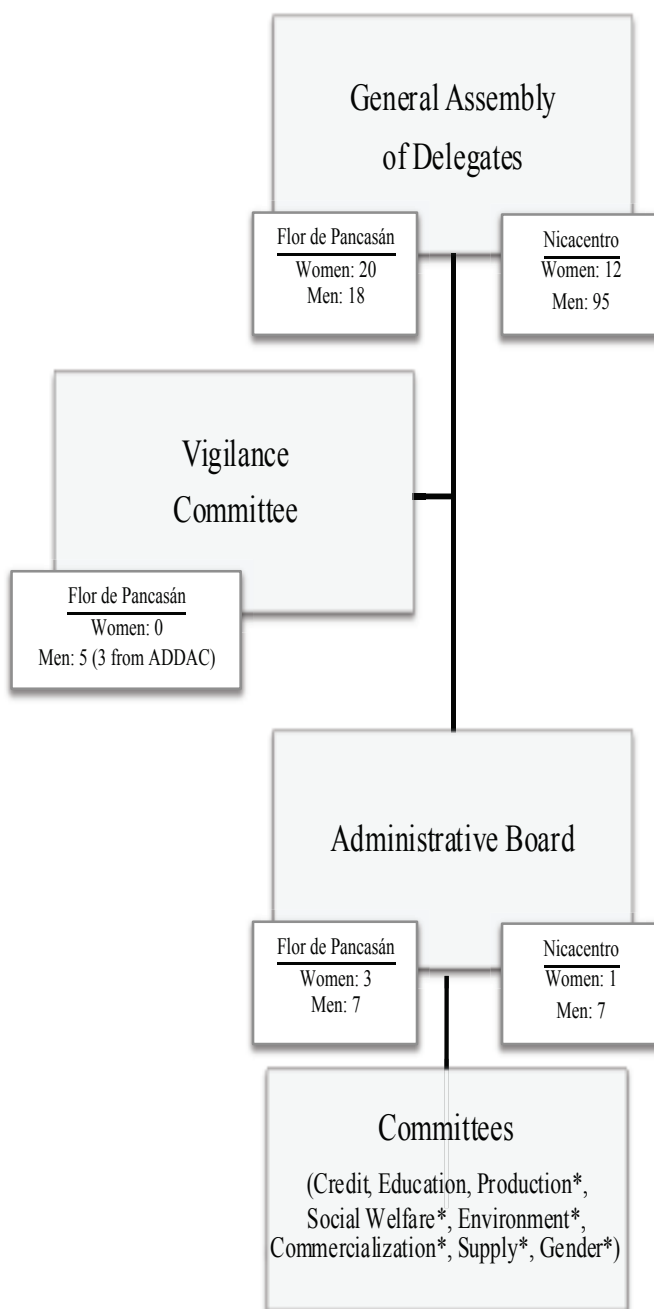
	Number of members		Number of producers delivering to collection center*	
	In total	Women	In total	Women
Flor de Pancasán	316	37%	203	16.7%
NICACENTRO	1,060	13%	62	11.3%

*in case of NICACENTRO: Collection Center Pancasán

Source: Interviews with representatives of Cooperatives and Collection Centers

However, participation cannot only be measured with a number; it is more than that. It is the way in which women participate that is crucial to understanding their presence. Gender barriers that have been erected in the past within cooperatives have to be broken. As already mentioned, one aspect is women's presence in decision-making positions: "Que los hombres están en la estructura de tomar decisiones; rompiendo ese por lo menos permitiría a las mujeres entrar en este espacio"⁴⁶ (Interview ADDAC, 2015). Women have to be regarded in decision-making processes and have to actively shape those processes. An indicator, though not an exhaustive one, is the number of women in decision-making positions in cooperatives. As illustrated in figure 7, Flor de Pancasán has achieved an almost equal distribution in the administrative board and the delegates, whereas at NICACENTRO scarcely have any decision-making power.

⁴⁶ "That men are structurally in decision-making positions; to break this at least would allow women to enter the space" (Interview ADDAC, 2015, own translation).



*Only exist at Flor de Pancasán

Figure 10. Organization chart of the cooperatives NICACENTRO and Flor de Pancasán

Source: own elaboration based on interviews

However, gender is not the only category restricting the access to decision-making positions. Class is another differentiating category shaping the structure of cooperatives. Large cattle farmers with their families usually living in urban areas enjoy a higher standard of living, face better access to information, for example, regarding price formation (Survey Producers in Matiguás, 2015). They can delegate reproductive work and chores on the farm and thus encounter fewer limitations than small farmers do. While in the cooperative Flor de Pancasán the structuring element of class is suspected to be smaller, the management level of NICACENTRO belongs to a privileged group of large farmers. While they boast to have a female vice-president, she is suspected to originate from an upper class and thus faces a different reality than female small-scale producers (Interview President NICACENTRO, 2015).

Flor de Pancasán takes gender equality very seriously. Its trainings and reunions take gender equality into focus, and technicians receive a gender-sensitive training to prevent the habit of some technicians only asking for and speaking to men. As illustrated in the organization chart, cooperatives have set up committees to deal with certain aspects of their work. Flor de Pancasán has established a committee to deal only with gender issues consisting of two women and one man, and with them the idea of gender promoters was born. Their purpose is to

informar a las familias como se debe vivir, como evitar problemas o conflictos familiares. Cuando suceden esas cosas visitamos los hogares y tratamos de remediar, la lucha es evitar la violencia y aparte de eso, damos charlas. Nosotras recibimos capacitaciones y las reproducimos en las comunidades.”⁴⁷ (Interview Gender Promoter, 2015)

With this tool the cooperative hopes to increase the self-confidence of women and to question traditional gender roles through engaging local women and men.

The degree of female participation on a production level of the industrial dairy value chain has risen. For some women ADDAC is seen to have greatly contributed to this: “ADDAC nos ha ayudado a podernos expresar y las capacitaciones han ayudado a perder la timidez. No en su

⁴⁷ “inform the families how they should live, how to avoid problems and family conflicts. When these things happen we visit the households and try to mediate, the goal is to avoid violence and next to this to talk. We receive trainings ourselves and try to reproduce our knowledge on a community level” (Interview Gender Promoter, 2015, own translation).

mayoría, pero si en un 50 por ciento”⁴⁸ (Interview Secretary of Administrative Board Flor de Pancasán, 2015). This statement demonstrates that gender-sensitive approaches and activities can foster changes. Cooperatives are in the position to positively or negatively influence female participation and equality in the dairy value chain, and that gets replicated on a household level.

However, not always do these efforts reach the intended audience. Only one out of all encountered female producers knew about the gender promoters program, and none of the male producers had heard of it. While the existence of an explicit gender-policy at Flor de Pancasán is laudable, it remains to mention that not even the president had read it. Thus, a discrepancy between the goal of ADDAC, to raise gender awareness and improve female participation, and the reality within the cooperative and for its members persists. However, from the comparison between Flor de Pancasán and NICACENTRO it can be concluded that discussing gender equality in cooperatives can question traditional gender roles in the dairy value chain.

Chapter 6: The interaction of gender with factors of exclusion and governance structures

The main research interest lied in identifying mechanisms and factors that shape women’s inclusion and exclusion, and to analyze the interaction of gender dynamics and the governance system, in the industrial dairy value chain in Matiguás. Five mechanisms and factors that present barriers inhibiting participation in the chain (to equal terms) are found. Knowing them enables stakeholders to specifically address and mitigate them. The second interest, the interaction of governance and gender dynamics, is closely connected to power relations. One category influencing these power relations is gender. Power asymmetries are shaped through gender inequalities and gender inequalities simultaneously shape power asymmetries. They exist not only between different groups of value chain actors, but also within these groups. How their interaction looks is described after elaborating the determinants of exclusion in the industrial dairy value chain in Matiguás.

⁴⁸ “ADDAC has helped us to express ourselves and the trainings have helped to lose our fear. Not for the majority of women, but maybe for 50 percent” (Interview Secretary of Administrative Board Flor de Pancasán, 2015, own translation).

6.1 Determinants of exclusion to the industrial dairy value chain – A gender sensitive approach

To improve the understanding of the industrial dairy value chain, and the gender dynamics that are embedded in it, the mechanisms leading to the exclusion of producers are identified in the following. Previous case studies (Flores et al., 2011; Polvorosa Narváez, 2013) have identified factors that enable or constrain farmers' access to this most promising chain. Access is defined as the ability to sell milk to collection centers independent of being a member to the corresponding cooperatives. While the previous case studies have determined factors excluding producers in general, in the following the factors and mechanisms of exclusion are analyzed in light of categories that structure societies, with gender being the most important one. However, gender is not the only category that inhibits or enables access: class, race, and possibly family status are simultaneously structuring factors as well.

Women work under less favorable conditions and “su trabajo es considerado como »artesanal«, de carácter informal”⁴⁹ (Lovo López & Mora Benard, 2014, p. 17). Thus they are confined to deliver to the traditional cheese making chain, aggregating little value and driving them further into invisibility and even less recognition. The intangible and tangible resources with which they are endowed, or rather the absence of them, make it difficult to access the industrial chain that offers more stable and higher prices. The following identification of inhibiting mechanisms is guided along the endowments from producers, using the five capitals of the livelihood approach. Thus five main mechanisms can be classified: access to the membership in cooperatives, quality standards ensured through hygienic milking practices, lack of financial capital, location, and traditional gender roles.

Inhibited access to membership in cooperatives

Being a member of a cooperative has various benefits: It ensures the access to credit, veterinary services, better prices, and punctual payment. Female members of a cooperative are more likely to participate in reunions and trainings, thus enhancing their knowledge (Survey Producers in Matiguás, 2015). Not only do they gain experience, they also get better organized and improve their social network. While non-members are able to deliver to collection centers as well, they face worse conditions, for example, lower prices. Thus being a member offers various

⁴⁹ “their work is considered as artisanal, of an informal character” (Lovo López & Mora Benard, 2014, p. 17, own translation).

advantages for producers; however, barriers exist and inhibit the process of becoming a member.

Per se it is not more difficult for women to become organized in a cooperative. As mentioned before, there are no official barriers restricting the access on the basis of gender. Nevertheless, many indirect gender barriers are in place. For example, cooperatives prefer to have only one member of the family to be an official member to simplify payment modalities (Interview ADDAC, 2015). If there is a husband in the household he is officially the head of the household and owner of resources, and he is usually the member of the cooperative. If women have their own cows in addition to the husbands', it is likely that they still sell these cows or their milk in his name; thus women are structurally disadvantaged. Although married women are interested in associating and actively taking part in the cooperative and its social activities, it is unlikely she will become a member without her own resources (Interviews Producers in Matiguás, 2015). Further, the amount of the membership fee⁵⁰ presents a problem for many farmers and paying them double is almost impossible for some. Especially for poor or small farmers with low output levels, the fee is a barrier, denying access to the benefits of cooperativism. Women who are the head of the household have on average fewer milking cows (see chapter 4.2.1 and 5.2.3), thus less output and, therefore, experience this barrier disproportionately.

In general, women don't participate as often as men in the public sphere; they are confined to the house and thus their network of social contacts is small. This also limits their access to information. When posed the question of why they would not become a member, one of the most common responses by female producers is that they did not know the requirements, although they all sold milk to the collection center (Survey Producers in Matiguás, 2015). Since the collection centers belong to a cooperative, this piece of information could easily be provided. However, it is not acknowledged as a problem by neither the cooperatives, nor the collection centers, and thus the access to benefits is refused because of missing information. Market information is profoundly important to improve the means of living. It is one of the most important capitals and most valuable in developing livelihood strategies, and in most agricultural chains in countries of the "global south" missing market information is considered as one of the main constraints producers face (Trienekens, 2011, p. 55).

⁵⁰ The fee usually amounts approximately 100-130 USD. In the case of Flor de Pancasán it is exceptionally low due to the high level of support they are receiving from the NGO sector.

High quality standards

Quality standards ensured through hygienic milking practices depend on the technical capabilities and, again, on knowledge and information. According to Trienekens (2011, p. 55), missing capabilities present a further main constraint, which can be confirmed in the case of the dairy value chain in Matiguás. Many farmers possess neither the human, nor the physical capital to comply with hygienic milking practices that ensure milk of a high quality. Farmers wishing to sell to collection centers must apply quality standards during milk extraction and handling as only milk of quality A and B is accepted. For this, knowledge about good milking practices and appropriate farm infrastructure are necessary. Good milking practices are a topic in trainings and are addressed by farm technicians, which again are linked to the access to cooperatives. Women usually do not milk; during the absence of the husband, male workers take over this job, but not all women have the sufficient human resources to ensure that male workers apply the suggested techniques. If they milk themselves, women are rarely able to comply with the more time-consuming standards because of their additional household and childcare chores (Interviews Producers in Matiguás, 2015).

The second requirement to produce good quality milk is the appropriate farm infrastructure consisting of a clean, roofed milking area, metallic utensils, and access to clean water. Their implementation depends on the access to financial capital; most small and medium farmers are not able to cover these expenses without the access to credit.

Lack of financial capital

There are various ways to obtain credit; the survey showed that, in addition to cooperatives and communities, microfinance institutions provide credits to farmers. However, Polvorosa Narváez (2013, p. 113) shows that access to credit does not per se enable farmers to carry out investments; it is the particular type of credit or financial product that is decisive. Long-term credits with low interest rates foster investments, while short-term credits and the pre-payment system of collection centers do not lead to increased investments.

The lack of financial capital not only represents a barrier for farmers wanting to deliver to collection centers, it inhibits indirectly their access to information as well. The sufficient endowment from this kind of capital is considered as crucial, especially for women:

*Unas de las principales necesidades de mujeres es el acceso a la tierra y a crédito. Estas dos cosas son las principales para obtener la tecnología, para obtener la asistencia técnica.*⁵¹
(Interview ADDAC, 2015)

Location

The geographic location of the farm is identified as a further barrier by the existing literature (Polvorosa Narváez, 2013, p. 104). The access to the industrial value chain depends on the distance of the farm to collection center and to the transportation network. Milk is a time-sensitive product, and under the given climate its durability is low. The majority of farmers take advantage of the milk collection routes that cover the main access roads and pick up the milk for a certain fee. Living in proximity to one of these collection routes is an important prerequisite. Often, farms are not located in walking distance to these roads, and the transport of milk is usually done on horseback, exclusively by men (Survey Producers in Matiguás, 2015). Some farmers take a lot of trouble to overcome their problem of remoteness, as can be seen by the story of one producer:

*Esos muchachos, los muchachos que trabajan para María Vicenta, ordeñan como a las dos de la mañana para poder salirle a esta ruta, porque a esa hora la ruta tiene que despegar. A veces se quedan algunas leches, porque tiene que estar aquí a una hora determinada.*⁵² (Interview Manager Collection Center Pancasán, 2015)

Transportation time and milk quality are negatively correlated, making it more difficult for remotely located farmers to bring in high quality milk to collection centers, which in turn makes them more likely to be excluded.

Some might argue that the geographic location is one mechanism that excludes male and female producers to the same extent. However, the location has different consequences on the capabilities of producers depending on their gender. Distance limits the access to information as well, and this limitation is not shaped in a gender-neutral way (Interview Selmira Flores, 2015). Men are not tied to the house as women are, “ellos pueden ir tres o cuatro días a un evento de formación, pero una mujer tiene más dificultades para decir: yo me voy a un evento

⁵¹ “One of the principal needs for women is the access to land and credit. Those two things are the principals for obtaining that technology for obtaining technical assistance” (Interview ADDAC, 2015 own translation).

⁵² “These guys, the ones that work for María Vicenta, milk around 2 am in the morning to be able to take advantage of this milk route, because at this hour the route has to start. Sometimes they are left with the milk, because they have to be there at a certain hour” (Interview Manager Collection Center Pancasán, 2015, own translation).

de formación cuatro días y dejar todo lo que está en la casa”⁵³ (Interview Selmira Flores, 2015). Women do not have the liberty to leave for a couple of days; there are usually male workers present at the farm who are able to take over the husbands’ chores, but women cannot pass on the childcare to visit trainings (Focus Group, 2015). Thus, while men have sufficient time to overcome the remoteness of farms, women do not, making participation in the public sphere more difficult for women.

Traditional gender roles

Gender roles in cattle farming are organized along the traditional distribution of work dominating the country. In this sense the value chain functions along established social norms that make women invisible in the chain. This invisibility, due to the traditional distribution of work, which has been described in chapter 5.2.3, characterizes a further mechanism of exclusion.

It can be concluded that various mechanisms and factors leading to inclusion exist (see figure 10). Most are related to the common constraints of agricultural value chains described by Trienekens (2011) (see chapter 2.2.2). Almost all affect producers independent of their gender; however, women are more disadvantaged than men regarding every factor. Thus the category gender is one structuring element of exclusion. However, other categories such as class play a role as well, and gender cannot be considered outside of other categories. For example, families possessing big farms with many cattle are able to outsource reproductive work to women from lower classes. Family status can be thought of as another category structuring the realities of people and their inclusion and exclusion to the chain, although this needs to be confirmed with a bigger sample than this case study provides as well as the factor of race.

All mechanisms and factors can be seen as interlinked; the connection element, in most cases, is lack of human capital in the form of knowledge and information. Human capital can be identified as the most important resource in all aspects. Improving women’s access to information helps them to exploit their potentials leading to better income opportunities. To facilitate this improvement, the image of women in the countryside must be changed. This development has to come from the educational sector, but networking and organization can

⁵³ “They can go to a workshop for three to four days, but a woman has a lot of difficulties to say, ‘I am going to a four day workshop and leave everything there is at home’” (Interview Selmira Flores, 2015, own translation).

play a crucial role as well. The dairy sector itself has to undergo change, and a new environment and image needs to be created in which not only are women included, but discrimination along all categories is abolished.

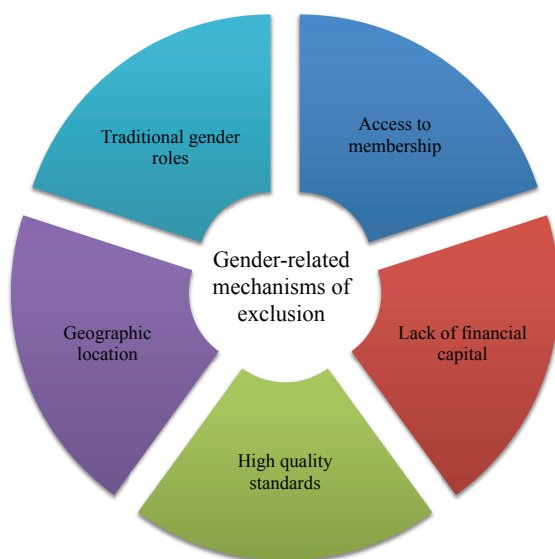


Figure 11. Overview of mechanisms and factors of exclusion

Source: own elaboration

6.2 The interaction of gender dynamics and governance structures

Power relations, which shape the everyday life of producers and their families, the market relations, and the whole value chain, determine both gender dynamics and governance structures. Power relations are inscribed in social interactions and gender is not the only category along which oppression and discrimination is exerted, but race, class, and body can be influential as well. Likewise, governance is shaped not only through gender, but through named categories as well.

Thinking about governance and gender and what their interaction means for the value chain, the following analytical levels are found to be relevant: access and control, decision-making power, and negotiation and agency. They are the angles used to look upon resources, inputs and services, production, distribution of labor, information, prices, gender dynamics in the public and private spheres, and spaces of negotiation (see figure 11).

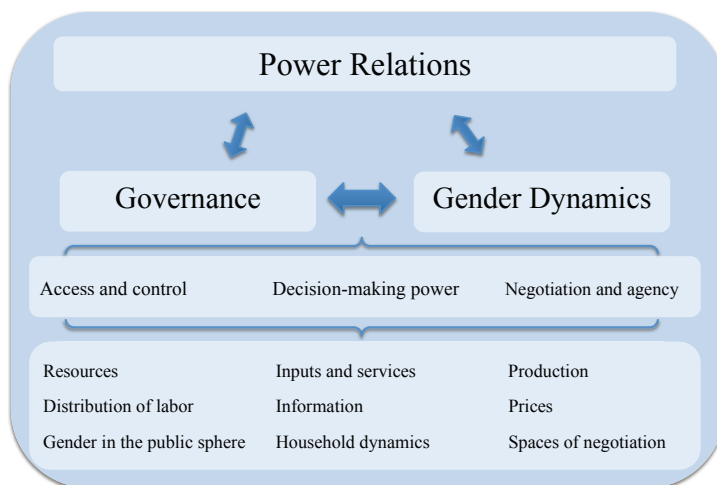


Figure 12. Levels of analysis

Source: own elaboration

Power relations manifest themselves in the ability to exclude actors from the chain. The underlying mechanisms and factors for this exclusion in connection to gender have already been elaborated in chapter 6.1, as well as the influence of power relations pertaining to gender and regarding the access to and control over resources, inputs, services, and production (chapter 5.2). However, the interaction of gender and governance manifests itself not only in exclusion mechanisms and access to and control over resources, but it becomes most visible when analyzing spaces of negotiation and decision-making processes. These present the most important and most influential link for the study of interactions between governance structures and gender dynamics.

The analysis of the interaction of gender and governance can be divided into a macro, meso, and micro level. The macro level includes the relations between the pasteurization industry and cooperatives, the meso level between cooperatives and producers and, respectively, between producers and other agents, and the micro level involves the household.

On a macro level, the industry has been found to shape power relations, creating a power asymmetry in their favor. This occurs because it is not the production, but the processing of the milk that is most highly valued. By creating the greatest added value and dictating prices, the processing firms have become lead firms. As these firms already dominate the dairy sector,

they have the capacity to easily defend their position. Nevertheless, dairy cooperatives jointly try to negotiate better terms, to improve their positions, and to increase their benefits. This endeavor for better conditions can be considered one form of an upgrading process.

The negotiations taking place between the industry and the cooperatives are shaped by male dominance. No dairy cooperative in Matiguás has a female president, thus women are a priori excluded from negotiations with the industry. The influence of gender and other categories within industries has not been analyzed so far, but it can be assumed that the patriarchal structure and its structurally inherent exclusion of women is replicated on this level as well. Women contribute an important part to the production, nevertheless they are excluded from negotiations as a general rule, as becomes evident in a comment by ADDAC: “Aunque la mujer trabaja en la parte productiva, a la hora de negociar es el hombre generalmente”⁵⁴ (Interview ADDAC, 2015). This structural exclusion pervades all three levels.

On a meso level, the relationship between the cooperative and farmers is characterized by the ability of cooperatives to exclude and include producers from milk sale regardless of their membership. However, the conditions of exclusion result from the industries’ demands, and cooperatives only replicate them and act as the organ exerting governance. Producers have no power to negotiate prices, nor terms with the cooperative; they act as price-takers independently of their gender (Interviews Producers in Matiguás, 2015). Price negotiations are not existent and producers find themselves in a dependent position. Because of the absence of negotiations the flow of information can be consulted as a proxy. The flow of information is designed in a one-sided manner: for example, producers receive price information via payment receipts, demonstrating the powerlessness producers have regarding prices (Survey Producers in Matiguás, 2015). The flow of information is asymmetrical and most producers wish to have more information (Interviews Producers in Matiguás, 2015). This asymmetry affects women more severely than men as they are less likely and less able to leave their homes and go to reunions and trainings, where information is provided.

Spaces of negotiations are decisive for defining governance and its interaction with gender. On a meso level these spaces are created with relation to the sale of cattle; these spaces are reserved

⁵⁴ “Although women work in production, when it comes to negotiations the man is usually paramount” (Interview ADDAC, 2015, own translation).

for men, as they involve the handling of large sums of money. If women manage to enter them, they are subjected to prejudices and worse conditions. Only one out of ten women takes over the sale of her own cattle. In all other cases it is the husbands' role to sell her cattle; if the woman is widowed, single, or divorced the son, brother, or cousin fulfills this task (Survey Producers in Matiguás, 2015). Negotiations as spaces of interaction in the public sphere are characterized through male dominance. The image persists that in “rubros que tienen alto valor no entran las mujeres”⁵⁵ (Interview ADDAC, 2015). Women are not taken seriously, and “los hombres son negociantes y si se encuentran con una mujer, le dicen que ella no sabe”⁵⁶ (Interviews Producers in Matiguás, 2015). Cattle is usually sold to intermediaries that tend to give women a lower price because they assume women have less information and knowledge (Interview Selmira Flores, 2015), but a female producer often “puede tomar decisiones, (...) se relaciona con los animales y sabe el precio del valor de una vaca”⁵⁷ (Interview ADDAC, 2015). Information can be identified as a key resource, which has a high influence on changing asymmetric power relations and governance structures in favor of the one having access to and power over it. Power is relational and asymmetries can only be established if there continues to exist an unequal access to capital endowments and most of all information.

Many women do not have equal access to information, which negatively influences their decision-making and bargaining powers and, thus, negatively affects their position within governance structures. In cases where women do possess knowledge and access to information, men do not admit these facts (Focus Group, 2015; Interview ADDAC, 2015). In negotiations on a meso level this manifests itself in selling processes, but this issue is also replicated on a micro level.

The micro level is often neglected in value chain research, which usually focuses on lead firms and their suppliers. The livelihoods of small- to medium producers are left out of the analysis; however, they are indispensable for understanding the value chain and its governance structures. Decision-making processes have already been briefly accounted, though not in the context of value chain governance. They are closely connected to the control over resources and production, as on a household level. That only half of the married women have the

⁵⁵ “in areas with high values, women do not enter” (Interview ADDAC, 2015, own translation).

⁵⁶ “men are the negotiators and when they come across a women they say that she knows nothing” (Interviews Producers in Matiguás, 2015, own translation).

⁵⁷ “can make decisions, (...) she relates with the animals and knows the price of a cow” (Interview ADDAC, 2015, own translation).

decision-making power over their own cattle has already been established; decision-making processes are characterized through male dominance. Especially in households where women participate in the value chain as producers but do not possess their own cattle and land did their lack of power of negotiation become evident (Survey Producers in Matiguás, 2015).

Governance refers to the rules of “how a game is played”, and men set these rules. One example is the still little-researched topic of the so-called “trampas de género”⁵⁸ (Interview Selmira Flores, 2015); with this term Flores refers to higher production costs that may arise for women, and are due to higher losses some producers face because of their gender.

*“En ese estudio, lo que yo planteo, es que hay una serie de maniobras de los hombres orientadas a hacer desistir a las mujeres, de manejar la actividad productiva. Entonces, esas acciones que los hombres hacen terminan incrementando los costos de la producción.”*⁵⁹
(Interview Selmira Flores, 2015)

This behavior is targeted at women to devalue them or make them give up their production, as women are not being accepted as cattle farmers by men. Thus it is crucial to change the image of women in this sector. To endow them with more capital, be it physical, natural, or human capital gives them the capability to participate on equal terms and confront these manipulations. The endowment with various capitals does not take place in a vacuum, for they are always embedded in power relations. To arrange mostly symmetrical relations, institutional factors can exert a positive influence. Cooperatives as institutions have the power to shape them toward more gender sensitivity and fewer gender inequalities. Discrimination along other categories such as class can also be addressed by cooperatives through, for example, opening high decision-making positions to people unrelated to their social class and income.

⁵⁸ Gender-trap

⁵⁹ “In the case study, that I initiated, a series of manipulations of men orientated at making women give up the production, could be observed. These actions implemented by men resulted in increased production costs” (Interview Selmira Flores, 2015, own translation).

PART III. CONCLUSION

Chapter 7: Conclusion

This thesis examines the integration of women as milk producers in the industrial dairy value chain, how their participation is shaped, and what factors and mechanisms exist to exclude them. Further, it analyzes the governance structures prevailing in the chain and how they interact with gender dynamics. For a case study site, the north of Matiguás is chosen because here the fields of tension between expanding agricultural production for international value chains, increasing conflicts over resources, and environmental issues and marginalization of rural groups living in poverty become illustrated.

To understand how women are involved in milk production it is not sufficient to only ask what women do, but their terms of participation in the value chain are decisive. Thus, women can be members of cooperatives, sell milk to collection centers, or be land and cattle owners; however, all of this does not mean they are as equally accepted as men are in the value chain. Concurrently, women face different levels of acceptance. I argue, that their participation is based on the following main determinants: their access to and control over resources, services, and financial capital; on their decision-making power and on household dynamics. Depending on these determinants different levels of participation can be described along women's marital status. The variety of women's acceptance and involvement ranges from the accepted widowed, single, and divorced female producers who are in possession of their own resources, and usually the power over them, to married women that administer the farm, however, enjoying neither sole control, nor equal recognition as men do. Nevertheless, not all married women face low decision-making power in the household; some women decide along with their husbands or independently what to do with land, cattle, and income. Although the majority of women remain invisible and their contribution goes unrecognized, some women challenge the traditional image of cattle farming as a sphere for only men and subtly change traditional gender roles through actively participating not only in the private but also in the public sphere as milk producers.

On their way to participation in the value chain, women face various barriers. Mechanisms exist that, along with other categories. The most important of these mechanisms are the access to the membership in cooperatives, quality standards ensured through hygienic milking practices, lack of financial capital, location, and traditional gender roles. One element

connecting all mechanisms is the lack of human capital in the form of information. Knowledge and information can limit inhibiting factors and prevent exclusion. Therefore, I conclude, that through improving women's access to information, their livelihoods can be enhanced.

A further starting point to reorganize structures is to break up the traditional distribution of labor. The dairy value chain is characterized through male dominance, which becomes replicated in the everyday lives of producers. The distribution of labor is organized along traditional gender roles. Men take over the productive work, receiving a monetary equivalent and recognition for it, while women are assigned reproductive tasks and receive neither of them, although contributing to the production process as well. Women combine both reproductive and productive tasks in their everyday lives, despite being bound to the house and patio. This confinement results in the lack of recognition of their contribution, which could be resolved through breaking with traditional gender roles and enabling women to enter and become more visible in the production sphere. Nevertheless, it cannot be the goal to involve women more in cattle farming if this does not coalesce with men taking over reproductive tasks as well. Further, taking on more jobs is not necessarily accompanied with greater independence and decision-making power.

Enhancing female decision-making power is a key to fostering their participation to equal terms in the chain. Cooperatives, for example, have the capabilities to change the traditional image of women through enabling their access to decision-making positions. From the comparison of the two cooperatives Flor de Pancasán and NICACENTRO, it can be concluded, that making gender a topic in reunions and gender equality a concern of the cooperative can challenge the male dominated sphere of cooperatives and foster female membership and involvement. However, these ambitions are the exception rather than the general rule. Thus women remain excluded from spaces of negotiation in the public sphere. This absence also becomes evident when looking at governance structures.

Governance structures are analyzed along three dimensions: value added, bargaining power, and the ability to exclude actors. A previous study hints that women face higher production costs, thus reducing their share of value added in comparison to men. Further, they face less bargaining power and are, respectively, excluded from negotiations. The ability to exclude actors is restricted to the pasteurization industry and is exerted by cooperatives, and both are characterized through male dominance. The industry has not only the power to exclude other

actors, it also dictates prices and qualities, establishing power asymmetries in its favor. The market form of the industrial dairy value chain resembles a bilateral oligopoly, in which the pasteurization industry acts as a lead firm. It is characterized by a captive governance structure, where producers function as mere milk producers, cooperatives as its collectors, and pasteurization firms, for the most part transnational.

If cattle farming has the potential to reduce poverty, as was proposed by the Nicaraguan government, remains questionable. It is shown that the dairy sector is constantly growing; however, milk production requires the endowment of high physical, natural, and human capital in the form of land, cattle, and further means of production. These assets are relatively expensive and thus their access remains refused to the poorest. Despite the positive trend observable regarding women's active participation in the chain in the recent decades, women's contribution to the industrial dairy value chains in Matiguás is still widely invisible and unacknowledged.

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