

THREE ESSAYS ON STANDARDS, GOVERNANCE AND STRUCTURAL CHANGE IN  
THE PERUVIAN ALPACA FIBRE VALUE CHAIN

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## TABLE OF CONTENTS

List of tables	5
List of figures and appendices	6
Abstract	7
Declaration	8
Copyright Statement	8
Acknowledgments	9
Chapter 1 - Introduction	11
1.1 Thesis rationale	11
1.2 Paper outlines	12
1.3. Conclusions	14
References	16
Chapter 2 – Competition for Rents and Structural Change in Commodity Chains: A Limited Access Order Approach	18
Abstract	18
2.1. Introduction	18
2.2. Theoretical review	21
2.3. Research design and methods	27
2.3.1. Unpacking the Embedded Framework	29
2.4. Structural change in the alpaca fibre chain in historical perspective	33
2.4.1. Old colonial rule and institutional foundations of inequality, 1532-1776	34
2.4.2. Political transition in the highlands, 1777-1839	38
2.4.3. Emergence and development of the alpaca fibre chain, 1840-1929	41
2.4.4. Modernization and privatization of the alpaca fibre chain, 1930-1968	47
2.4.5. Reform and collapse, 1969-1989	50
2.4.6. Re-composition and globalization, 1990-2011	53
2.5. Applied Embedded Framework	58

2.6. Theoretical propositions	65
2.7. Conclusions	72
References	74
Chapter 3 – Organizational Upgrading in the Peruvian Alpaca Fibre Value Chain	83
Abstract	83
3.1. Introduction	83
3.2. Theoretical review	85
3.3. Research methods	87
3.4. Alpaca fibre in Peru: actors, institutions and interactions	88
3.5. The Peruvian Technical Norm: origins and technical characteristics	98
3.6. Standardization and organizational upgrading in the fibre chain	100
3.7. Discussion	105
3.8. Conclusions	110
References	112
Chapter 4 – Standardization and Governance Dynamics in the Peruvian Alpaca Fibre Value Chain	117
Abstract	117
4.1. Introduction	117
4.2. Theoretical review	120
4.2.1. Governance	120
4.2.2. Functionalism, constructivism and standardization	122
4.3. Research methods	124
4.3.1. Operational framework	125
4.4. Evidence of standardization in the Peruvian alpaca fibre chain	127
4.4.1. State interventionism and resilient fibre chain governance: the 1997-1999 MITINCI standardization program	133
4.4.2. Standardization under the PTN (2002-2013)	134
4.5. Discussion	140

4.5.1. Stakeholders' interests in response to standardization	140
4.5.2. Segmented governance modes and dynamics before and after formal introduction of the PTN	143
4.5.3. Operational attributes of the bi-dimensional framework	146
4.6. Conclusions	148
References	150
Chapter 5 - Conclusions	158
5.1. Individual paper contributions	158
5.2. General contributions	161
5.3. Limitations	162
5.4. Further research	163
Appendices	164

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## LIST OF TABLES

Table 1	Theoretical complementarities of the Embedded Framework	26
Table 2	Ten and five-year alpaca exports averages, 1830-1929	44
Table 3	Embedded Framework, 1532-1929	61
Table 4	Embedded Framework, 1930-2011	62
Table 5	Frequencies of competition for rents and structural change processes per form and period	64
Table 6	Frequency and share of competitive processes per form per period	67
Table 7	Aggregate proportion of competition forms per period	68
Table 8	Aggregate proportion of structural change forms per period	69
Table 9	Proportion of structural change forms by competition forms, 1532-2011	70
Table 10a	Frequency of exogenous and endogenous competitive events per period	71
Table 10b	Share of exogenous and endogenous competitive events per period	71
Table 11	Private standards: Incatops and Michell (huacaya breed)	94
Table 12	Peruvian Technical Norm 231-300 – 2004 for fleece categorization	99
Table 13	Peruvian Technical Norm 231-301 – 2004 for fibre classification	100
Table 14	Price range (US\$) for sheared white huacaya fibre per standard per campaign	103
Table 15	Total alpaca fibre production in Peru (metric tons), 2000-2010	128

## LIST OF FIGURES

Figure 1	Embedded framework	31
Figure 2	The Potosí-Lima production and trade axis, 1545-1776	36
Figure 3	The alpaca fibre axis at the end of the XIX century	43
Figure 4	Alpaca fibre production and trade circuit, 1990 to present	55
Figure 5	Distribution of alpacas in Peru	89
Figure 6	Structural configuration and interactions among chain actors before PTN standardization	90
Figure 7	Structural shifts in the fibre chain after PTN implementation	102
Figure 8	Bi-dimensional supply-demand framework	126
Figure 9	Segmented structure of the alpaca fibre chain before 2002	130
Figure 10	Segmented structure of the alpaca fibre chain after 2002	138
Figure 11	Segmented governance modes and dynamics before and after formal introduction of the PTN	145

## LIST OF APPENDICES

Appendix 1	Participant's Information Sheet	
	English version	164
	Spanish version	168
Appendix 2	Consent Form	
	English version	172
	Spanish version	173
Appendix 3	Semi-Structured Interviews – Questionnaire	
	English version	174
	Spanish version	176

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ABSTRACT

Abundant literature has been generated by theoretically and empirically grounded Global Value Chain (GVC) studies covering the fundamental concepts of governance, upgrading and distribution of rents. Using the Peruvian alpaca fibre chain as case study, the three papers composing this thesis independently tackle these research themes as follows: (i) Paper One explores the impact of political and economic competition for rents on structural change in commodity chains; (ii) Paper Two introduces the concept of organizational upgrading and asks how it stems from standardization in commodity chains, and; (iii) Paper Three explains how standardization influences governance dynamics in commodity chains. The three papers are analytically fixed on actors and institutions at the national level of the commodity chain. Theoretical and conceptual contributions stemming from these papers advance our understanding on commodity chain research in the developing world.

## DECLARATION

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“Studying commodity chains is... something like observing the operations of the human body by means of multiple tests for the physician or looking through the Hubble telescope for the cosmologist. We are measuring indirectly and imperfectly a total phenomenon that we cannot see directly no matter what we do. The point however is to figure out how this total phenomenon operates, what are its rules, what are its trends, what are its coming and inevitable disequilibria and bifurcations. It requires imagination and audacity along with rigor and patience. The only thing we have to fear is looking too narrowly.”

Frontiers of Commodity Chain Research, Immanuel Wallerstein (2009)

## CHAPTER 1 - INTRODUCTION

### 1.1. Thesis rationale

Global Value Chains (GVCs) (Gereffi et al, 2005, Humphrey and Schmitz, 2002) study processes of transformation and value-addition from raw materials to end products across international production and trade networks. As the forces of globalization progress, input-output structures of commodity chains<sup>1</sup> embedded in these networks become more geographically and functionally fragmented. How production and exchange activities resulting from structural fragmentation are coordinated, how rents generated by these activities are distributed and what capabilities do chain stakeholders display to capitalize their (conflicting) interests are the main research concerns of GVC scholars. However, despite valuable contributions provided by empirically and theoretically grounded chain studies, increased complexity of market coordination mechanisms has led to economics-centred analytical approaches in detriment of political, historical and socio-cultural ones (Bair, 2005; Gellert, 2003; Hough, 2010; Neilson, 2013). The study of commodity chains in the developing world demands critical and comprehensive analysis of non-market dimensions and variables to understand the widening political and socio-economic inequalities characterizing them.

Alpaca fibre, not to be referred as wool, has been harvested since pre-Columbian times and stands as the single source of income for thousands of peasants scattered in the Andean highlands. Yet, while prices of fibre garments reach the thousands in international luxury markets small-scale producers remain engaged in subsistence economies. In this regard and fundamentally underpinned by the rationale of inequality the Peruvian alpaca fibre chain constitutes a useful case study for the following reasons: (i) Alpaca fibre is a globally traded commodity; (ii) Peru produces over 80% of the world's total fibre output (FAO, 2005) (iii) Alpaca fibre textiles are a low-technology and labour-intensive industry representative of the developing world; (iv) The chain's structural configuration of fragmented supply and concentrated demand articulated by

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<sup>1</sup> The unit of analysis of GVCs – geographically and functionally fragmented production and trade networks - is shared by similar theoretical frameworks such as Filières (Griffon and Hugon, 1996), Commodity Chains (Hopkins and Wallerstein, 1986), Value Added Chains (Porter, 1990), Global Commodity Chains (Gereffi and Korzeniewicz, 1994) and Global Production Networks (Dicken, 1994). The concepts of value and commodity chains are used interchangeably in this thesis. The word “global” encompasses chains spreading across countries and continents, yet the conceptual and operational elements of GVCs are also applied to national, regional or local chains where different spatial scales apply (Sturgeon, 2008).

middlemen is found in commodity chains across sectors and countries, and; (v) Although unique, its political, economic and socio-cultural institutions and organizational environment resemble the complexities of many commodity chains in the developing world. The developmental orientation of this thesis is expressed by three self-contained papers complemented by this general introduction and a succinct final chapter offering general conclusions.

## 1.2. Paper outlines

The first paper adopts a macro perspective to explore structural change in commodity chains. Shifting from traditional GVC market coordination approaches, political and economic competition for rents is assessed in historical perspective to explore structural transformations of commodity chains. For this purpose a novel theoretical framework which leverages the GVC framework into the institutionally enriched Limited Access Order (LAO) framework (North et al, 2009; 2013) is used to map, track and describe the historical transformation process of the fibre chain since the XVI century to present. Following this historic-analytic exercise competitive processes generating structural transformations are codified in the Embedded Framework and summarized through descriptive statistics. The codified information is then used to elaborate four theoretical propositions in which the predominance of political over economic forms of competition on structural chain transformations is highlighted. Application of the Embedded Framework resulting from leveraging the GVC into LAO facilitates identification of complex organizational and institutional variables underpinning competition for rents and subsequent structural change.

The following GVC theoretical limitations are overcome in the first paper as follows: (i) It moves beyond economics-centred analytical approaches dealing with market coordination by showing that domination frequently replaces negotiation in informal production and exchange activities in commodity chains (Bair, 2005; Hough, 2010; Neilson, 2013); (ii) It provides a stronger exogenous and endogenous institutional framework for chain studies by leveraging GVCs into the LAO framework, and; (iii) Historical narratives are fully incorporated into commodity chain research as analytical rather than mere descriptive accounts of structural transformation processes. The resulting theoretical propositions fully take into account context-specificity of chains embedded in developing countries, thus allowing them to overcome the framework's institutional weakness (Coe et al, 2008).

The second paper adopts a micro and meso perspective to describe and explain organizational upgrading stemming from standardization in the fibre chain. Adoption of fibre quality standards by small-scale producers leads to organization and concentration of supply in the form of Local Collection Centres. Acquisition of organizational capabilities through learning by organizing increases bargaining power allowing small-scale producers to avoid transaction costs imposed by middlemen. Further vertical integration with small textile industries offers formally organized producers access to international markets. Better terms of chain engagement and higher capture of rents achieved through organization and concentration of supply are not certain under traditional firm and production-oriented upgrading modes. However, sustainability of organizational capabilities in the fibre chain is threatened by dependency of Local Collection Centres' on public credit and corrupt management which can trigger regression to transactional captivity by middlemen networks.

The purpose of this paper is to expand the narrow view of existing upgrading modes as production and firm-oriented concepts (Kaplinsky and Morris, 2001; Humphrey and Schmitz, 2002) which do not solve the fundamental problem of buyer power (Schmitz, 2006). The empirically informed concept of organizational upgrading does so by showing that: (i) increased bargaining power and vertical integration with small textile industries improves terms of chain engagement for organized small-scale producers which cannot be achieved through traditional upgrading modes; (ii) organizational upgrading is not restricted to producers but also to fibre service providers who play a critical role in the reduction of price penalties imposed by dominant buyers, and; (iii) product and process upgrading are not a direct outcome of standardization but of organizational upgrading. Finally, while easy access to public credit and corrupt management of Local Collection Centres do not guarantee sustainable organizational upgrading, market production and exchange benefits for organized small-scale producers cannot be ignored.

The third paper adopts a micro and meso perspective to describe and explain governance dynamics influenced by standardization. An empirically informed bi-dimensional framework resembling the fibre chain's supply-demand structure provides the operational basis for tracing segmented governance dynamics influenced by fibre standards diffusion and adoption. Under the lens of standardization it is possible to identify, describe and explain segmented chain governance dynamics and modes. The bi-dimensional framework allows identification of horizontal chain linkages which linear input-output GVC frameworks are unable to do. Findings show that far from neat and

homogeneous GVC governance typologies, segmented governance modes co-exist but do not co-evolve as standardization unfolds in the fibre chain. Comparative case studies using the bi-dimensional framework are encouraged for a more comprehensive and deeper understanding of governance dynamics in commodity chains.

By paying excessive attention to the role and impact of international lead firms, micro and meso interactions determining chain governance dynamics at domestic chain levels are ignored. Moreover, functionalist governance determinants, namely complexity, codifiability and capabilities of suppliers (Gereffi et al, 2005) reinforce “one-size-fits-all” chain governance typologies such as buyer and producer-driven (Gereffi, 1994) which blur co-existing governance modes within a single chain. Therefore, the application of the bi-dimensional framework places national actors, institutions and their interactions at the analytical core of local-to-national governance dynamics while a constructivist approach disaggregates overall governance modes to trace, describe and explain vertical and horizontal linkages in a non-linear, non-static and non-deterministic manner.

### 1.3. Conclusions

Top-to-bottom chain inequalities constitute the generic rationale underlying the three papers of this thesis. The key concepts of structural change and rent distribution, upgrading and governance are investigated in the Peruvian alpaca fibre chain. Case study selection is justified due to structural, institutional and organizational similarities with commodity chains across productive sectors and countries. In contrast to economics-centred research approaches the three self-contained papers are cross-disciplinarily informed by political economy, history, economic geography as well as development, innovation, organization and standards studies. This research approach is justified by the need to comprehensively understand the complexities of commodity chains in the developing world. The thesis rationale and cross-disciplinary approach define its developmental orientation.

Through exploration of the impact of competition for rents on structural change in the fibre chain the theoretical contributions of the first paper are expressed by the Embedded Framework and the four theoretical propositions which place political competition and history rather than economic coordination at the core of the commodity chain research agenda. Contributions from history-grounded research are fully appreciated when reviewing the remaining two papers of this thesis. The second

paper contributes to GVC research by introducing and developing the concept of organizational upgrading. In contrast to firm and production-oriented modes of upgrading – product, process, functional and inter-sectoral (Kaplinsky and Morris, 2001; Humphrey and Schmitz, 2002) – organizational upgrading has a trade-enabling attribute which improves terms of chain engagement of small-scale producers. Lastly, through the application of a bi-dimensional framework, paper three adds to our understanding of chain governance dynamics by tracing, describing and explaining shifts in governance modes stemming from standardization. In contrast to linear GVC frameworks, the bi-dimensional framework does not restrict analysis to vertical linkages but extends it to horizontal ones. Moreover, context-specific governance modes within the same chain can be evaluated through the segmented structure provided by the paper’s framework.

The overall aim of this thesis is to offer novel theoretical tools and conceptual approaches for GVC scholars conducting research on commodity chains in the developing world. Comparative research efforts grounded not only in economics but politics, history and socio-cultural studies are recommended for broader and better understanding of governance, upgrading and rent distribution in commodity chains.

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## CHAPTER 2 – COMPETITION FOR RENTS AND STRUCTURAL CHANGE IN COMMODITY CHAINS: A LIMITED ACCESS ORDER APPROACH

### Abstract

This paper explores the impact of competition for rents on structural change in commodity chains. Through combination of the Global Value Chain and Limited Access Order Frameworks, an Embedded Framework is applied on a historical case study of the Peruvian alpaca fibre chain to identify the institutional and organizational variables – political and economic - underpinning rent competition and subsequent structural change. The competitive processes and subsequent structural transformations contained in the historical narrative are then identified and codified in the Embedded Framework. The resulting information is summarized through descriptive statistics and used to elaborate four theoretical propositions which highlight the predominance of political over economic forms of competition generating structural change in the fibre chain. Conclusions preliminarily stress the operational attributes of the Embedded Framework but call for further validation of propositions through comparative case studies.

Key Words: Global Value Chains, Limited Access Order, Competition, Structural Change, Development, Peru

### 2.1. Introduction

Violent uprisings of small-scale commodity producers are recurrent in the developing world. Although the motivations of South African miners or Colombian coffee pickers to challenge the exclusive political and economic systems that govern them may differ, uneven distribution of rents stands as a shared concern. In formal markets subject to the rule of law, winners and losers of economic competition are usually determined by price and quality of products as well as financial, organizational, and technological innovations. However, in informal markets where the rule of law is applied by and for elites, competition for rents is purposefully limited through political manipulation of economic institutions (Acemoglu and Robinson, 2012; North et al; 2013).

Engagement of commodity-based industries in local-to-global production and trade networks has been studied using several chain frameworks. From Commodity Chains (CC) (Hopkins and Wallerstein, 1986) to Global Value Chains (GVC) (Gereffi et al, 2005)

a common enquiry has been to track the productive transformation and commercial transit of raw materials into end products and to explain how rents are generated and distributed among chain participants. Research on entry barriers (Gibbon, 2008), standards (Reardon et al, 2001; Ponte and Gibbon, 2005) and transaction costs (Pingali et al, 2007) has paid particular attention to market interactions among asymmetrically powerful actors to determine how and by whom chains are coordinated or governed (Gereffi et al, 2005) and what opportunities (or limitations) exist for value-addition through upgrading (Kaplinsky and Morris, 2001; Humphrey and Schmitz, 2002).

Although GVC literature has explicitly acknowledged the fundamental importance of power relations, the framework has been criticized for its economic-centred approach (Bair, 2005; 2009; Hough, 2010). Among notable exceptions to this approach, Bernstein (1996) explained how social and political institutions shaped the South African maize filière<sup>2</sup> while Robbins (1999) highlighted the impact of cultural variables on meat production and trade in India. Moreover, through a case study of the Indonesian timber industry, Gellert (2003: 54) observed that “the politics of particular chains are largely unexplored” while Rammohan and Sundaesan (2003) advanced the argument that chains are socially embedded constructs. For Bair (2005), theoretical refinement from CCs to GVCs has led to gradual de-politization, de-socialization and de-historization of the latter. These criticisms merit attention as the study of power relations detached from political and socio-cultural variables is an incomplete and often misleading undertaking.

In developing countries, chain governance is strongly influenced by non-market variables within highly fragmented supply and concentrated demand structures articulated by middlemen networks. A second similarity is found on the passage of these commodities from informal to formal markets. A third similarity relates to limited capacity of developing nation-states to enforce the rule of law as we progress from rural-informal to urban-formal spheres. The outcome of these fragmented, uncoordinated and asymmetric chains is uneven distribution of rents which triggers conflict between bottom and top-end chain actors. In this regard, Le Billon’s (2007) suggestion that chain

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<sup>2</sup> Among competing chain frameworks we also find the French filière and Global Production Networks (GPN). The former is concerned with price formation mechanisms from raw materials to end consumer products while the latter provides a network perspective of global production and exchange systems. For a comparative theoretical review between filières and Global Commodity Chains (GCC) see Raikes et al (2000) and for a similar exercise between GPNs and GVCs see Coe et al (2008).

transformations should be studied in relation to conflict prompts us to shift the analytical focus from market coordination to competition, both political and economic.

Analytical fixation on chain governance has weakened the framework's institutional dimension (Coe et al, 2008; Hess and Yeung, 2006) as the concept is reduced to economic arrangements for the creation of "business enabling environments" (Neilson, 2013: 20). Thus, analysis is narrowed simply because economics is more than markets and power relations is more than economics. Chain interactions are not only conditioned by market institutions; context-specific political, social and economic orders configure different institutional arrangements for rent generation and distribution which, if uneven, become a potential source of conflict (or cooperation) among stakeholders. Continuous market and non-market interactions condition mobility and position of actors in the chain, the degree and direction of power flows that govern interactions among them and rent generation and distribution patterns throughout shifting input-output structures. In attention to these issues, Staritz (2012) calls for a better understanding of structural change and its underlying competitive processes.

Integrated answers to multi-layered GVC criticism demand a multi-layered research strategy and approach. First, through an exploratory case study of the Peruvian Alpaca Fibre Chain (AFC), this paper will contribute to our understanding on structural change by shifting the analytical focus from market coordination to political and economic competition for rents. Second, a novel Embedded Framework (EF) will be elaborated by leveraging the structurally resilient GVC template of the AFC into a Limited Access Order (LAO) framework (North et al, 2009; 2013). LAO's attention to broader competitive processes broadens the fibre chain's socio-political context allowing us to place chain research back to the critical tradition of political economy. Third, the Embedded Framework will be applied to trace the institutional and organizational developments underpinning rent competition and subsequent structural transformations in the AFC from 1532 to 2011. A historical perspective is crucial because development and change imply the passage of time (Bates, 2001). Yet, a telescopic rather than microscopic perspective requires the reader to shift expectations from detailed accounts to general patterns of change.

The paper is composed of seven sections. Following this introduction, Section 2.2. provides an integrated theoretical review of the GVC and LAO frameworks while Section 2.3. presents the research methodology and elaborates the Embedded Framework.

Section 2.4. develops a macro-historical narrative of the AFC from 1532 to 2011 to trace, map and explain geographical and functional transformations resulting from political and economic competition for rents. In Section 2.5. the framework is applied to identify and codify competitive processes and structural transformations contained in the historical analysis. In Section 2.6. this information is summarized through descriptive statistics for the elaboration of four theoretical propositions aimed at placing political and historical analysis at the core of the commodity chain research agenda. Section 2.7. concludes.

## 2.2. Theoretical Review

The theoretical foundations of GVCs (Gereffi et al 2005) have progressed from CCs (Hopkins and Wallerstein, 1986; 1994) and Value Added Chains (VACs) (Kogut, 1985; Porter, 1985; 1990) to Global Commodity Chains (GCCs) (Gereffi and Korzeniewicz, 1994). Informed by World Systems Theory (Hopkins and Wallerstein, 1977) and Latin American Structuralism (Prebisch, 1949; Furtado, 1964), the CC approach assessed the impact of uneven terms of trade on division of labour and productive arrangements in developing countries. Management scholars shifted attention to national competitiveness in global production networks and specified inputs, outputs and rents generated at each stage of the industrial transformation process. Contributions from CC and VAC frameworks as well as from organizational sociology led to the emergence of GCCs (Gereffi and Korzeniewicz, 1994) where inter-firm networks became the main study subject leading to primary development of key concepts such as governance and upgrading. Further contributions from neo-institutional economics (e.g. transaction costs) and industrial organization resulted in the currently dominant GVC framework.

Global Value Chains study how improved market coordination among asymmetrically powerful actors generates opportunities for value addition through upgrading. The framework is conceptually founded on four dimensions: (i) input-output structure; (ii) territoriality; (iii) governance; and (iv) institutions. The first two dimensions allow us to map, track and describe structural change. From a geographical perspective structural change can occur through emergence, articulation/disarticulation<sup>3</sup> and/or disappearance of chain nodes at local-to-global levels. From a functional perspective, variation in

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<sup>3</sup> Initially proposed by Bair (2009) and further developed by Bair and Werner (2011) the “disarticulations” approach provides a historically-based narrative of socio-economic processes underpinning (de)construction of commodity chains. Particular attention is paid to production and exclusion dynamics leading to uneven local-to-global chains.

division and specialization of labour at each node can also alter a chain's structural configuration. Both perspectives – geographical and functional – tend to fragmentation with increased globalization and have profound implications for coordination (or competition) as well as for rent generation and distribution among chain participants.

An initial typology of governance was proposed by Gereffi (1994) who distinguished between producer and buyer-driven chains. The former are dominated by capital-intensive firms involved in high-tech sectors (e.g. automotive) which exercise tight control of forward and backward linkages. Buyer-driven chains are generally found in low-technology and labour intensive industries (e.g. commodities) where dominant firms govern through decentralized supply networks usually based in developing countries. This dual-mode of governance blurred distinctions on firms' types and functions prompting Gereffi et al (2005) to propose five new governance modes: (i) Markets, where chains are governed through spot price and arms-length economic interactions; (ii) Modular, where suppliers follow buyers' specifications; (iii) Relational, where culturally complex chains are governed by reputation, mutual dependence and close ties; (iv) Captive, where small-scale producers face prohibitive switching costs and accept transactional conditions imposed by dominant buyers; and (iv) Hierarchical, where vertically integrated production systems are under strong managerial control.

Governance achieves policy relevance when combined with the concept of upgrading or the possibilities that firms engaged in value chains have for increasing rents through value addition. Four modes of upgrading were initially proposed by Kaplinsky and Morris (2001) and further developed by Humphrey and Schmitz (2002), namely product, process, functional and inter-sectoral. Attention to governance and upgrading has allowed the GVC framework to go beyond the geopolitical dimensions of nation-states by considering acquisition and application of capabilities by firms spanning across international production and trade systems.

Institutions<sup>4</sup> correspond to the fourth but weakest dimension of the GVC framework (Coe et al, 2008; Hess and Yeung, 2006). As early noted by Sturgeon (2001: 11) chains “do

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<sup>4</sup> This paper borrows the definition provided by North (1990: 3) of institutions as “the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction. In consequence, they structure incentives in human exchange, whether political, social or economic.” The US economist further elaborates on the differences between formal and informal institutions referring to the former as constraints such as laws, decrees and regulations and the latter as norms of behaviour, conventions and self-imposed codes of conduct. When

not exist in a vacuum but within a complex matrix of institutions” where economics cannot cope alone with such complexities. Therefore, the risk of reducing chain analysis to “a descriptive characterization of the changing geography of production” (Gellert, 2003: 27) does not appear as an overstatement when Gereffi et al (2005: 82) recognize that “a simple framework is useful because it isolates key variables and provides a clear view of fundamental forces underlying specific empirical situations”. In this regard, the shortcomings of theoretical simplification are diminished explanatory powers of the framework. Moreover, Hough (2010: 1017) adds that “by emphasizing continuity over space and stability over time, commodity-chains analysts tend to gloss over the contingent social and political relations, and specifically the use of violence by states and other coercion-wielding organizations, that historically underpin the creation of market-based modes of accumulation”.

The structural strength of GVCs can be complemented by the broader institutional dimension brought by Limited/Open Access Orders (LAO/OAO) (North et al, 2007; 2009; 2013). Founded on political economy, neo-institutional economics and history, the LAO’s analytical unit is the nation-state where chains are embedded. The framework places violence – an exacerbated form of political and/or economic competition – as entry point for assessment of power bargains among competing factions for rent control and distribution. Powerful factions with effective violence potential form dominant coalitions to politically control and distribute rents. As long as all factions are satisfied with their shares, dominant coalitions remain united (North et al, 2013). On the other hand, those excluded from and subordinated by dominant coalitions have limited (or null) rights to participate in political and economic activities.

Rents and violence are pivotal concepts of the LAO. The framework adopts the neoclassical definition of rents as net benefits after total costs - including opportunity costs – are subtracted from total benefits. Resources invested without social purpose by rent-seeking actors can also lead to rent generation (North et al, 2013). Although acknowledging political and economic variants of (violent) competition, the LAO does not explicitly define them. This paper adopts Krueger’s (1974) definition of political competition<sup>5</sup> as competitive rent-seeking where higher private returns are obtained at

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enforced, they jointly condition and define the incentive and disincentive structures of societies and their context-specific political and economic systems.

<sup>5</sup> In liberal democracies with formal markets, political competition refers to competition among political parties for votes to secure office (Stigler, 1972). Bardhan and Yang (2004) incorporate the notion of accountability where formal mechanisms for removal of political leadership are

the expense of social ones. Rent-seeking blossoms in the absence of the rule of law where illegitimate coercion or violence can be exercised by politically powerful actors to secure particular interests at the common good's expense. On the other hand, economic competition refers to market rivalry among independent producers (or buyers) seeking higher rents, reputation or increased participation through price, quality and/or innovations. In informal markets where unfair practices (e.g. collusion) are not effectively sanctioned by the rule of law, the price mechanism is subverted and monopolies/monopsonies become the expression of imperfect competition. Thus, absence of market competition and the limited possibilities to capture rents remove incentives for efficiency and innovation.

The LAO framework is not static. It can progress from Fragile to Basic to Mature orders. In Fragile LAOs - where governments may or may not exist - factions influenced by personal leadership and capable of displaying effective violence potential compete for rent control. Permanent uncertainty affects the hardening of formal and informal institutions. This environment limits the establishment of credible commitments among faction leaders resulting in socio-political instability (North et al, 2009; 2013). If governments are established, Fragile LAOs can progress to a Basic LAO where non-state organizations can only access the dominant coalition through personal ties with political elites. Violence capacity rests under governmental control. When non-state organizations proliferate, governments may decide to implement and enforce market institutions to foster competition. If hardened over time, a set of formal laws may provide the foundations for a Mature LAO (North et al, 2013). In Mature LAOs governments remain the dominant coalition's core faction but provide more even support to internal and external organizations. They still decide which non-state organizations can gain access into the dominant coalition. Through institutional and organizational consolidation, government credibility can be enhanced leading to higher stocks of social capital (e.g. trust) and increased stability and predictability of the political and economic order.

Limited Access Orders can regress if factions of the dominant coalition disagree on power bargains and rent distribution. However, if progression of the political, economic and social order is achieved, the LAO can institutionalize "doorstep conditions" towards

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available for citizens. Therefore, incentives to remain in power necessarily include serving the public interest.



an Open Access Order (OAO) characteristic of liberal democracies with free markets (North et al, 2013: 15-19). This transition is achieved through legitimate and effective enforcement of the rule of law, capacity of all actors to create perpetually lived organizations and domestication of violence by state organizations which are accountable to citizens. However, in developing countries where LAOs are the norm, asymmetric distribution of political and economic power configures exclusive political systems where elites advance their interests through political manipulation of economic institutions.

According to Acemoglu and Robinson (2012), political and economic institutions can be defined as extractive or inclusive. The former regulate the power and capacity of the state – or dominant coalitions in Fragile LAOs – to govern society. The latter shape market incentives to save, invest, innovate and/or adopt new technologies. Extractive political institutions configure narrow and unconstrained distribution of power whereas inclusive ones lead to centralized but plural power distribution patterns. In the hands of dominant coalitions, extractive political institutions allow the implementation and enforcement of extractive economic institutions to transfer wealth from disadvantaged subsets of society to dominant ones. Thus, a synergistic relationship is created between extractive political and economic institutions where both tend to reinforce each other and persist over time.

With these conceptual definitions in hand, the combined strengths of the GVC and LAO frameworks can prove useful for commodity chain research by complementing the structural-spatial dimension of GVCs with the institutional-temporal (historic) dimension of LAOs (see Table 1). Given that chain governance and structure co-exist, studies of commodity chain in developing countries - where coordination is often an illusion and competition for rents a permanent reality - offer a research path for novel and richer analytical insights on structural change.

Table 1: Theoretical complementarities of the Embedded Framework

	EMBEDDED CHAIN FRAMEWORK (ECF)	
	Global Value Chains (GVCs)	Limited Access Order (LAO)
<b>Theoretical foundations</b>	International business, neo-institutional economics, organizational/economic sociology	Political economy, neo-institutional economics, history
<b>Theoretical strength</b>	Structural dimension	Institutional dimension (context)
<b>Theoretical weakness</b>	Institutional dimension	Structural dimension (absent)
<b>Unit of analysis</b>	Chains (production and trade networks)	Nation-state
<b>Level of analysis</b>	Microscopic: micro and meso	Telescopic: macro and meso
<b>Analytical dimension</b>	Spatial	Temporal
<b>Research approach</b>	Inductive: empirically informed	Deductive: theoretically informed
<b>Research strategy</b>	Descriptive: map and track change	Explanatory: understand change
<b>Research questions</b>	Where, who, which, what, for what	How, why, when, by whom, for whom
<b>Analytical focus</b>	Market coordination Economic relations Generation and distribution of rents Role and impact of international/transnational actors and institutions on chain governance	Political (and market) competition Socio-political relations Control and distribution of rents Political manipulation of economic institutions by dominant actors for rent distribution
<b>Key concepts</b>	Governance, upgrading, value addition and rents	Rule of law, violence, coercion and rents
<b>Key texts</b>	Humphrey and Schmitz (2000), Sturgeon (2002), Gereffi et al (2005)	North and Thomas (1973), Bates (2001), North et al (2007; 2009; 2013)

Source: Own elaboration

### 2.3. Research design and methods

This qualitative research adopts an interpretive approach to explore the impact of competition for rents on structural change in commodity chains. The Peruvian alpaca fibre chain is the embedded case study. The AFC - through its input-output and territorial features - provides the structural dimension and constitutes the main unit of analysis. The Peruvian nation-state in which the AFC is embedded provides the Limited Access Order (LAO) of this investigation. The LAO can be disaggregated into four embedded units of analysis: (i) political institutions; (ii) economic institutions; (iii) dominant coalition; and, (iv) rent sources. A distinction is made between endogenous and exogenous political and economic institutions to provide a more comprehensive institutional context surrounding and within the main unit of analysis. Theoretical triangulation of the GVC with LAO confers external validity to the case expressed by the Embedded Framework.

Exploratory case studies are best suited for preliminary research questions and novel theoretical paths. Their use is recommended when no research paths have been clearly specified or when available data is insufficient for more consistent problem formulation. This paper explores the impact of political and economic competition for rents in structural change of commodity chains. However, change is not restricted to input-output and territorial dimensions but also to functions performed by dominant and subordinated actors within and between chain nodes. These changes are traced in historical perspective but historical case studies pose some operational challenges.

According to Yin (2003), case studies are useful when the researcher has limited or no control over the research subject. Based on these considerations the historical method is restricted to the study of the past while case studies are better suited for analysis of contemporary events. However, competition is an open ended process where by tracing the institutional and organizational foundations and trajectories of a particular chain we readjust the role of history from the study of the past to an influential force behind contemporary processes of change. This methodological malleability is acknowledged by Yin (2003: 7) who observes that “histories... can be done about contemporary events; in this situation, the strategy begins to overlap with that of the case study.” Given the open-ended nature of our case study - more competitive processes in the fibre chain are likely to occur in the future - methodological triangulation with the process tracing method is

applied to strengthen internal validity (Bennett and George, 1997; Collier, 2011; George and Bennett; 2005).

In contrast to the historical method, process tracing emphasizes theoretical refinement and development and is not dependent on primary sources for the elaboration of historical accounts. This method is well suited for testing frameworks involving multiple variables and interactions among them. In combination with our exploratory case study, process tracing preliminarily identifies direct and indirect relations between competition for rents and structural change. This is conducted through a general analytical narrative that is more interested in patterns of change rather than detailed accounts of events. By focusing on patterns, preliminary relations between competitive process and structural change can be identified. The general narrative is useful for describing and explaining ongoing phenomena and methodologically appropriate in abstract case studies where data reliability is insufficient or lacking.

The historical narrative provided through process tracing is based on secondary sources. Quantitative and qualitative historical accounts of the alpaca fibre sector are very limited and figures for basic indicators from official and unofficial sources differ greatly and are highly unreliable. These limitations are acknowledged by Bonavia (2009: 514) who warns us about “the poor quality of the data for SACs in general”. Historiographical scarcity is extensible to Peruvian economic history but core texts on the subject (Sheahan, 1999; Thorp and Bertram, 1985; Wise, 2003) have been consulted for data and information collection. Additional secondary sources include papers and technical manuals listed in the references section. Empirical sources for improved construct validity were obtained through non-participant observation in the AFC between January and April, 1999 and August and October, 2012 in the cities of Arequipa, Lima and Puno.

Purposeful selection of the case study has been carried out for the following reasons: (i) alpaca fibre is a globally traded commodity; (ii) the fibre textile industry is representative of developing countries; (iii) the AFC is characterized by significant political and economic power asymmetries conditioning (violent) competition; (iv) the organizational and institutional determinants of competition in the AFC are deeply rooted in history, and; (v) the researcher is familiarized with the socio-cultural environment of the case study. The rationale for case selection is aimed at generalizing operational procedures and methodological findings for research on commodity chains in developing countries but findings are preliminary. The exploratory case study offers space for deductive and

inductive approaches and methodological refinement. Research propositions stemming from this investigation are provisional insofar more comparative case studies validate or reject them. Therefore, this paper acknowledges potential limitations of theoretical propositions and operational shortcomings of the proposed framework although both contributions are open for refinement.

### 2.3.1. Unpacking the Embedded Framework

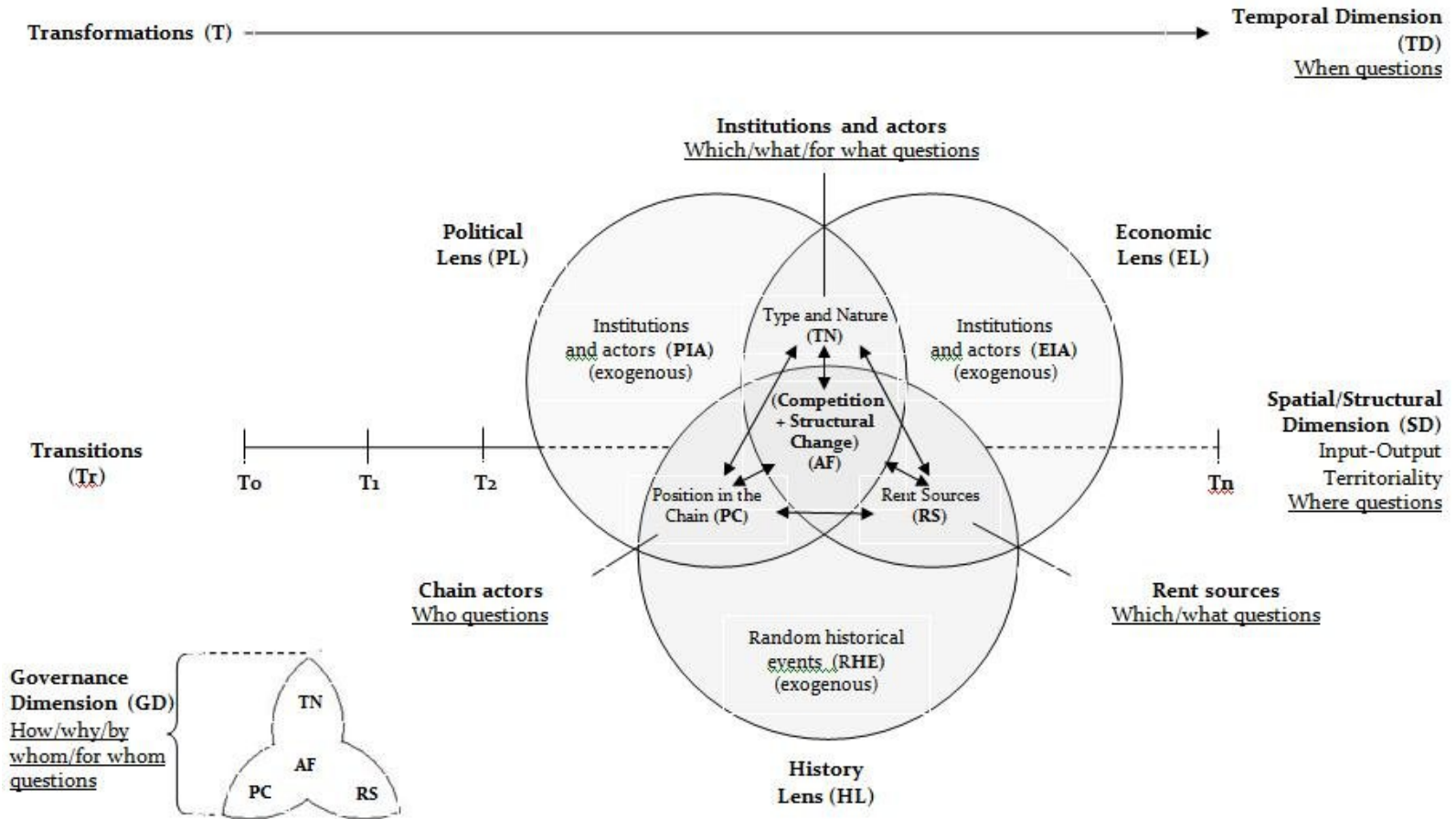
The input-output and territorial dimensions provide structural strength to the GVC framework. These dimensions allow researchers to map and track the nodes composing a chain, their upward/downward linkages and their geographical position. They are also useful for identifying and describing the productive functions performed by actors within and between nodes. They both constitute the spatial/structural dimension of the AFC through which we find answers to “where” questions (e.g. where does supply come from?). However, governance and institutions as currently defined by GVC scholars stand as methodologically problematic dimensions. In GVC terms, governance is understood as market coordination mechanisms and the more ambiguous power relations among actors (Gereffi et al, 2005; Ponte and Gibbon, 2005). The governance dimension helps us find answers to “how” (e.g. how do interactions among chain actors occur?), “why” (e.g. motivations/interests for interaction) and “by/for whom” (e.g. who exercises chain control and who benefits from it). Through these questions we understand chain coordination. However the term market implies that analytical and methodological attention is paid to economic factors, variables and determinants for which an economic lens (EL) is applied. Through this lens we identify the market actors – “who”, “which” and/or “what” (e.g. firms) – and economic institutions – “which” and “what” (e.g. taxes) – that facilitate or limit market coordination.

In GVC theory governance modes are classified as market, modular, relational, captive and hierarchical (Gereffi et al, 2005). These modes will depend on market interactions at the micro (e.g. individuals), meso (e.g. firms) and macro (countries) levels for coordination of production and exchange activities. These interactions, GVC literature tells us, are determined by complexity and codifiability of information as well as competency of suppliers (ibid). Therefore, in operational terms, the governance dimension corresponds to the economic lens by which chain actors, institutions and interactions among them are studied through analytical focus on market coordination. Depending on the spatial dimension to be studied, this lens can zoom in (e.g. micro

level) or zoom out (e.g. macro level) or narrow/expand (e.g. geographical coverage) to investigate the economic structure, mechanisms, processes, dynamics and outputs of a particular chain. However, in commodity chains where formal markets are scarce or absent, using the single economic lens of governance becomes an insufficient analytical device.

In attention to the crucial importance of non-market variables for commodity chains in developing countries the LAO framework provides the political (PL) and historical (HL) lenses missing in the economics-centred GVC framework (see Figure 1). By partially overlapping the three of them we configure a much richer and complex governance dimension (PC + RS + TN + AF) (see Figure 1) which in the absence of LAO would leave us with the single economic lens equating governance. Applying the LAO helps us identify the following variables: (i) what political institutions designed and enforced by dominant coalitions govern chain interactions to secure control and distribution of rents? (No answers found by GVC framework alone); (ii) what economic institutions designed and enforced by dominant coalitions govern interactions which determine ownership and distribution of factors of production? (Comprehensive answers found by the GVC framework alone); (iii) which actors compose the dominant coalition and how do they relate to each other to preserve the extractive system? (Partial answers found by GVC framework alone); and, (iv) where do rents come from and how are they extracted and distributed by the dominant coalition? (Partial answers found by GVC framework alone).

Figure 1: Embedded Framework



Source: Own elaboration

The de-politization and de-historization of GVCs has already been noted by Bair (2005). Coming from the rich historical tradition of political economy, the LAO framework fills the political and historical vacuum of GVCs by incorporating political institutions and actors (PIA) to the economic institutions and actors (EIA) of GVCs. The dominant coalitions which enforce extractive economic institutions are the dominant political and economic actors. The LAO framework adjusts the analytical focus (AF) from GVC coordination to the Embedded Framework's competition<sup>6</sup> for rents and structural change (see Figure 1). As Bates (2001) remarks, economic activity is not only articulated by transactions but also by the politics of persuasion, bargaining, coercion and violence. From a chain perspective, Le Billon (2007) complements this observation by stating that commodity chains are characterized by resource conflicts at different spatial dimensions. The Embedded Framework benefits from the structural strength of GVCs and the institutional strength of LAO (see Table 1).

By adding the political lens to examine political institutions and actors the Embedded Framework refines the ambiguous "power relations" or "power asymmetries" of GVC governance. When superposed on the economic lens, the researcher is obliged to define the type and nature (PL + EL = TN) of political and economic institutions and actors. By type I mean functional characteristics of actors and institutions (e.g. formal-informal, endogenous-exogenous) and by nature their effect on economic and political agents (e.g. inclusive-exclusive/extractive). These distinctions remind us that chain actors are not mere economic and rational agents. Their (market) relations are not only dictated by supply-demand rules but also by political and socio-cultural interests, beliefs and values. As a practical example, in informal and highly asymmetric commodity chains like the AFC, the absence of the rule of law not only leads to uneven distribution of rents (e.g. cartels) but also hinders upgrading possibilities of bottom-end actors (e.g. informal and low paid labour).

The history lens (HL) enriches chain analysis by adding a crucial temporal dimension (TD) to the Embedded Framework related to "when" questions (see Figure 1). In GVC research these questions are usually answered through narrow and mainly descriptive accounts of events. The temporal dimension in conjunction with the framework's analytical focus allow us to better map and track the chain's structural transitions (Tr) configuring its historical transformation process. Structural transitions occur at different

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<sup>6</sup> I replace the concept of violence originally emphasized by North et al (2013) with competition for rents where violence is an exacerbated form of political competition.



times as we move the overlapped lenses rightwards ( $T_0 \rightarrow T_n$ ). In this case study, structural transitions generated by political and economic competition for rents constitute the core analytical focus. When the history lens is superposed on the political lens ( $HL + PL = PC$ ) we can trace and identify the actors (who) and their shifting (or static) positions in the chain through time (e.g. changing members of the dominant coalition).

When the historical lens is superposed on the economic lens, rent sources ( $HL + EL = RS$ ) are clearly identified and “which”/“what” questions can be attended. Ownership and distribution of factors of production (e.g. land, labour and capital) are also traced under this lens portion (RS). In institutional terms, extractive economic institutions designed and enforced by dominant coalitions to control rents are scrutinized under rent sources – commodities, factors of production and extractive/inclusive economic institutions – which change over time. Their identification and description is facilitated by the superposition of the history lens over the economic lens or vice versa.

The triple superposition of political, economic and history lenses configures the case study’s analytical focus which shifts from GVC market coordination to competition for rents and structural change. The fibre chain’s political and economic institutions and actors and random historical events are exogenous to the AFC except in the overlapping spaces of the three lenses which are endogenous to it. When added to the analytical focus they jointly configure the complex governance dimension of the Embedded Framework. These complexities explain the difficulties of finding satisfactory answers to “how”, “why” and “by whom/for whom” questions attached to the Embedded Framework’s governance dimension. In theoretical terms, the Embedded Framework’s governance dimension leverages GVCs fivefold governance modes (Gereffi et al, 2005) into Fragile, Basic and Mature LAOs. In this regard the application of the Embedded Framework in historical perspective can aid researchers in the identification of compatible GVC-LAO governance modes as well as forms (e.g. political, economic) and types (e.g. endogenous, exogenous) of competition (for rents). Both chain governance and structure are mutually dependent and co-evolving dimensions.

#### 2.4. Structural change in the alpaca fibre chain in historical perspective

Since Spanish colonization in the XVI century to present, the Peruvian economy has remained primary-based and dependent on foreign demand. From silver to cotton and

guano to copper, the country's productive base has been characterized by concentrated ownership of factors of production and supply of low value-added goods which have limited Peru's options for industrial upgrading. This paradox of plenty has been aggravated by historically rooted socio-cultural, economic, and political inequalities. High poverty rates resulting from uneven distribution of rents have triggered violent competition between elites and the rest which have shaped the geographical and functional structures of national production chains embedded in global production and trade networks. Within highly informal, uncoordinated and non-transparent domestic markets without effective rule of law, distribution of rents generated by commodities has been systematically controlled by the few rich in detriment of the many poor. To find how these processes have led to the current configuration of the AFC is that we turn to the following analytical historical narrative.

#### 2.4.1. Old colonial rule and institutional foundations of inequality, 1532-1776

The fall of the Inca Empire in hands of Spanish conquistadores in 1532 marked the beginning of three centuries of colonial rule in Peru. At the time of the conquest, South American Camelids (SACs)<sup>7</sup> were distributed in the coastal and Andean valleys stretching from northern Ecuador to central Argentina (Dedenbach-Salazar, 1990). Although alpacas and llamas had been exploited as communal goods by extended family communities or ayllus the introduction of sheep, cattle and pigs by Iberian immigrants in the 1530s displaced local species to poorer pastures in the highlands and traditional modes of production were discontinued (Salas, 2009). Diseases imported from Europe and indiscriminate killings accelerated the fragmentation of native herds which by the early 1600s were confined to the southern altiplano region surrounding Lake Titicaca where they are still found to present (Bonavia, 2009)<sup>8</sup>.

After submission of indios a number of conquistadores were granted royal graces to expropriate, parcel and usufruct their land, a process that gave birth to the *encomienda* system. Yet, without consent from the Spanish crown, *encomenderos* appointed *caciques* – chiefs of tribes conquered by the Incas or former Inca nobles themselves - to organize

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<sup>7</sup> There are four species of South American Camelids: domesticated alpacas (*Lama pacos*) and llamas (*Lama lama*) and wild guanacos (*Lama guanicoe*) and vicuñas (*Vicugna vicugna*).

<sup>8</sup> Although Sumar (1985: 11) estimates the alpaca population at 10 million in the 1530s, Bonavia (2009: 500) rejects these figures arguing that no references are provided. However, citing several Spanish chroniclers from the époque, he mentions that herds of 100,000 animals were common in Inca times.

and exploit the captive labour force at will. The emerging encomendero-cacique coalition incorporated priests for active conversion of their new subjects into Catholicism. With land and labour under political control, the dominant coalition expanded rent sources through taxation, agro-diversification and the creation of technologically backward industries known as *obrajes*. Fearing monopolistic control of rents, King Charles I of Spain promulgated the New Laws of 1542 which led to the formal creation of the Viceroyalty of Peru; the *encomienda* system was discontinued, a High Court or Audiencia of Lima established and labour camps known as *reducciones de indios* organized to divert rents back to Spain. After several attempts to overthrow the king's representatives, the old dominant coalition was militarily suppressed in 1548, signalling the loss of their privileges and the transition from a Fragile to a Basic order centred on the Viceroyalty of Peru. Alongside political power and, in detriment of *encomenderos*, economic power was gradually accumulated by *hacendados* who were not granted royal graces but purchased land directly from the crown.

The discovery of silver in Potosi in 1545 and mercury mines in Huancavelica in 1564 transformed the agricultural and textile-driven colonial economy into a mining one. Stimulated by bullion-hungry Spain, a production and trade axis emerged between Potosí and Lima providing a visible geographical structure to the Vice-royal economy (see Figure 2). The creation of *corregimientos* (provinces and districts) and *cabildos* (city councils) governed by *corregidores* (magistrates) and *alcaldes* (majors) followed in 1556. The new dominant coalition underpinned by the *corregidor-hacendado* alliance replaced the old *encomendero-cacique* one although *caciques* and priests were incorporated into the former. This new dominant coalition refined the extractive economic institutions of the *encomienda* system but administrative control and consolidation of a Basic LAO were achieved during the 1570s with Viceroy Francisco de Toledo's reforms. Among the most important, expropriation of lands and expansion of *haciendas* were forbidden, *reducciones* relocated to nascent urban areas for optimization of indigenous taxation and labour organization and the Inca institutions of the *mita*<sup>9</sup> and *yanaconaje*<sup>10</sup> were revived, therefore expanding and refining the range of extractive economic institutions on *indios*. Currency was also introduced to facilitate economic exchange leading to incipient

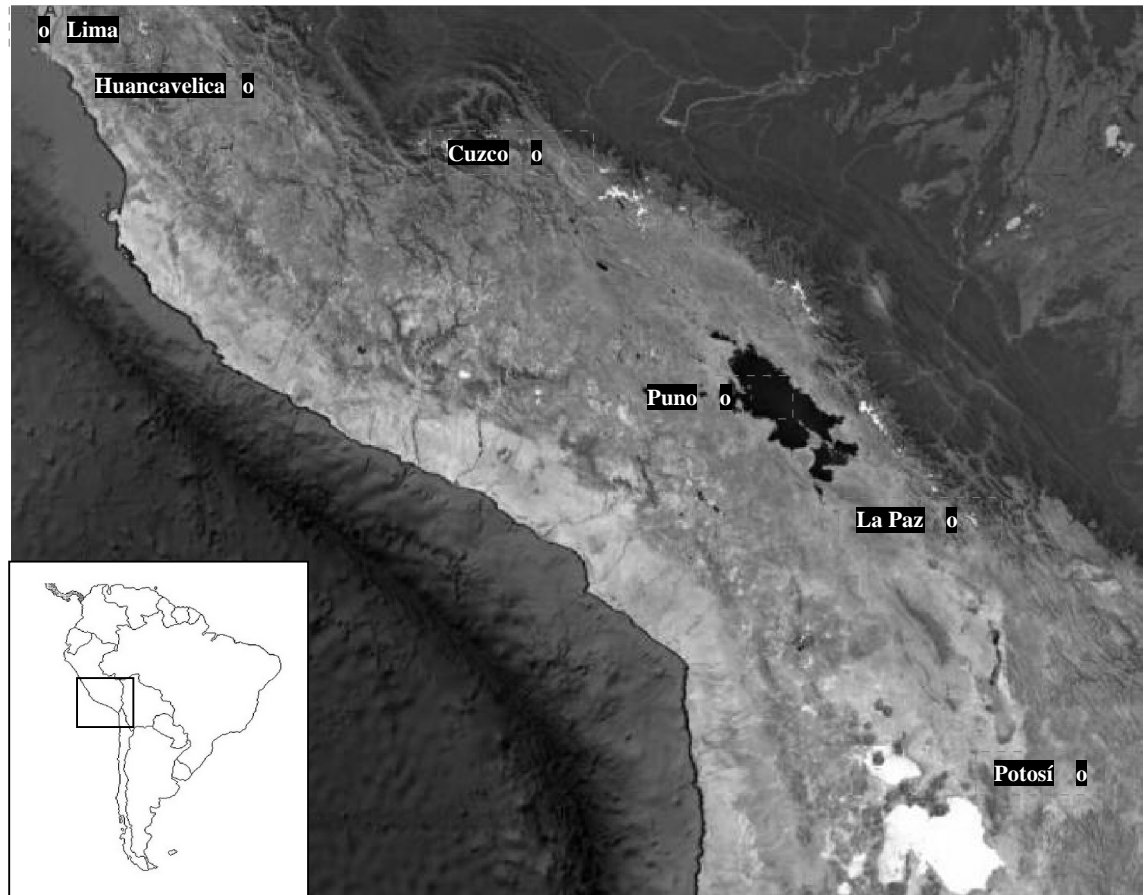
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<sup>9</sup> Under the Inca *mita* system the empire's labour force was allocated for fixed periods of three to nine months to work on agricultural and livestock production and secure the needs of the elites (e.g. priests, army). Under the colonial *mita* system, male *mitayos* aged 18-50 were sent to the silver mines but also to agricultural estates and *obrajes* for 10-month periods of forced labour.

<sup>10</sup> *Yanaconaje* was a system of forced labour in agriculture at the service of the Inca and his empire's ruling class. During the colonial period, *yanaconas* were granted subsistence parcels in *haciendas* where they would work for life.

development of land and labour markets. Monetization marked a slow transition from barter to a market economy and allowed the creation of repartimientos mercantiles in which indios were forced to purchase non-basic goods from members of the dominant coalition.

Figure 2. The Potosí-Lima production and trade axis (1545-1776)



Source: Own elaboration based on Google Maps

Until the late XVIII century, rents were extracted by the dominant coalition through surplus value of indigenous labour, taxes, repartimientos mercantiles and commodities such as silver, wool and coca. With colonial economic performance positively correlated to mining production (Contreras, 2010), the 1570-1590 silver boom fostered the opening of textile obrajes across the Vice-royal economic axis to satisfy demand from Potosí, Lima and Spain. While a vibrant wool textile industry flourished until 1605, small herds of alpacas were raised in reducciones restricting fibre production to self-consumption and petty trade among mitayos and yanaconas (Salas, 2009). Given the land-intensive nature of livestock production, increased demand for wool textiles fostered illegal expansions of haciendas. Escaping violent expropriation or confinement into

reducciones, large numbers of indios settled in remote areas of the highlands with small herds of alpacas and llamas. Forced migration during the XVI-XVII centuries had a profound and lasting impact on indigenous socio-cultural and economic structures as kinship ties were broken and labour became tied to land.

A marked decline of silver production during the first half of the XVII century led to closure of a large number of obrajes and replacement of caciques by Spanish administrators (Salas, 2009). The mining industry, the most important endogenous driver of economic change during this period, forced competition for shrinking rents among factions of the dominant coalition but political and economic costs stemming from this turmoil were transferred to indios through labour exploitation. Smallpox and tuberculosis pandemics imported from Europe increased mortality rates and led to demographic collapse. Estimates by Cook (1981) indicate a population of 4-15 million indios at the time of the conquest which decreased to 1.3 million in 1570 and 700,000 in 1620. Loss of surplus value of indigenous labour and revenues from indigenous taxation forced the Viceroyalty to issue workers quotas to haciendas and to loosen mita conscription but demographic recovery did not occur until the mid XVIII century (Contreras, 2010). However, fostered by demand from Qing China, a second expansive cycle of silver production between 1650 and 1750 spurred domestic demand for textiles and the reopening of obrajes (Salas, 2009). Although large obrajes were found in northern cities such as Quito and Cajamarca most were located in Arequipa, Cuzco and Puno (Quiroz, 2010). The patterns of textile production and consumption expressed during the 1570-1605 period remained unaltered until the last quarter of the XVIII century with fibre production and trade confined to indigenous subsistence economies without any recognizable chain structure.

Political transition in Spain from Habsburg to Bourbon rule in 1700 marked the introduction of major reforms aimed at tightening administrative control over its colonies. As demographic collapse had eroded fiscal revenues and depopulated the highlands a series of Land Sales Laws were issued between 1710 and 1780 in favour of indios. However, these sales were capitalized by hacendados in Cuzco and Puno and “legal” expropriations of land followed with support from corregidores and alcaldes (Chocano, 2010). In spite of the scale and intensity of indigenous exploitation no major rebellions were registered until the XVIII century. Yet, the first episodes of violence occurred between 1724 and 1736 due to mita and taxation abuses but were quickly suppressed (O’Phelan, 2012). A second wave of revolts erupted between 1751 and 1756 in

response to legalization of repartimientos mercantiles by corregidores which coincided with declining silver production.

However, the final blow to the increasingly fragile political and economic order of the Viceroyalty of Peru came with the transfer of Potosí, La Paz and Puno to the newly created Viceroyalty of La Plata in 1776. The Potosí-Lima axis was geopolitically and functionally fractured leading to irreversible loss of rents from silver mining and its complementary textile and agricultural activities. While social unrest and economic decline prevailed in the southern Andes, the emerging sugar cane and cotton haciendas of the coastal region began a period of intensive capitalization and technological modernization leading to political and economic isolation of the southern highlands. For the viceroyalty's economic and fiscal interests the loss of Potosí marked the transition from an Andean to a coastal-based economy which unleashed a third wave of violence in 1777 that reached its climax with the Revolution of Tupac Amaru II in 1780 (O'Phelan, 2012).

Although no recognizable AFC structure could be found during the 1532-1776 period, the fracture of the Lima-Potosi axis ended economic flow of goods from south-to-north. Competitive processes were exclusively of political nature given the absence of formal markets and the enforcement of extractive economic institutions by political elites on captive indios. These processes were all exogenous to the alpaca fibre sector too as fibre production and trade were confined to subsistence economies throughout the highlands. Nevertheless, this period laid the institutional foundations of political and economic inequality between shifting dominant coalitions and the indigenous labour force while forcing the Andean economy to trade south and west-ward.

#### 2.4.2. Political Transition in the Highlands, 1777-1839

The creation of the Viceroyalty of La Plata stood as Spain's pre-emptive response to the political and economic ambitions of Portugal, UK and France in southern Atlantic trade. The enactment of the Free Trade Commerce Laws by Charles III in 1778 empowered the colonial ports of Cartagena and Buenos Aires in detriment of the Pacific-based Callao and the Viceroyalty of Peru (Fisher, 2003). With the Potosi-Lima axis fractured, southern Andean trade shifted to Buenos Aires isolating Cuzco and triggering competition for rents among hacendados. Prompted by abusive political authorities and taking advantage of factional infighting the indigenous revolution led by cacique Tupac Amaru II in 1780

achieved a pan-Andean scale by quickly spreading to Puno and La Paz. But it was not until 1782 that the first real threat to Spanish rule ended with the execution of its revolutionary leaders.

Fearing future indigenous uprisings in response to the extractive economic system, between 1784 and 1790 Bourbon Spain dismantled the colonial dominant coalition by abolishing *corregimientos* and *repartimientos mercantiles*, discontinuing inheritance of *cacicazgos* and creating seven *intendencias*<sup>11</sup>, each headed by an *intendente* (governor) responsible for appointing new political authorities in his jurisdiction (Flindell Klaren, 2000). Initially under administrative control of Buenos Aires, the *Intendencia de Puno* was reincorporated to the Viceroyalty of Peru in 1796 and although this transfer had limited impact on regional economic recovery it would be instrumental for the emergence of the Alpaca Fibre Chain (AFC) as Puno concentrated the largest alpaca population. Nevertheless, during the 1790s hundreds of *obrajes* were closed in Cuzco as cheap European wool textiles imported from Buenos Aires flooded the domestic market and massive de-capitalization of *haciendas* aggravated economic depression.

Passage to the XIX century was marked by demands for independence by illustrated urban creole elites which began to assess notions of freedom and property rights against the vertical political system imposed by the monarchy. From 1810 onwards these thoughts evolved into conflict between “royalist” and “patriotic” armies resulting in Peru’s independence in 1821. The newly founded Republic implemented a liberal Agrarian Reform between 1821 and 1825 aimed at incorporating *indios* into republican life. The *mita*, indigenous taxes, and *cacicazgos* were constitutionally banned, *reducciones* dissolved and landless *indios* granted individual property rights. However, the liberal dream vanished with the realities imposed by a collapsed national economy. Heavy expenditure during the battles of independence forced the reintroduction of indigenous taxes known as *contribuciones personales* in 1826 which became the second most important source of fiscal revenue until their formal abolition three decades later (Jacobsen, 1993). For the indigenous population, independence simply meant a transition from semi-slavery to nominal citizenship without political and economic participation in the Republic.

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<sup>11</sup> The seven *intendencias* were Lima, Trujillo, Arequipa, Cuzco, Huamanga, Huancavelica and Tarma which became the geopolitical template for republican geopolitical organization into departments.

After independence, Cuzco and Puno remained ignored by Lima's political leadership. Both departments hosted Peru's largest indigenous populations but were geographically distant from the dynamic coastal markets. With few economic incentives to consider, hacendados showed little interest in acquiring or expropriating indigenous lands as political risks during the post-independence years increased (Jacobsen, 1993). Yet, the establishment of a national political bureaucracy led to a slow reconfiguration of provincial and local dominant coalitions composed by hacendados and republican bureaucrats. This process offered partial relief to indios who resumed their collectivist modes of production where during the first four decades of the XIX century a "period of lethargy" was observed given that no major indigenous rebellions were registered (Méndez, 1997: 180)

Flight of Spanish capital after independence had severe economic implications for Cuzco and Puno but not for Arequipa which since 1821 began to consolidate its economic primacy in the south with the arrival of foreign merchants, especially from Britain. Trade warehouses known as *casas comerciales*<sup>12</sup> were founded to export raw wool mainly to textile mills based in Manchester and Bradford. They also imported cheaper textiles of better quality from Europe forcing hacendados to downgrade from textile manufacturers to commodity suppliers. In words of Jacobsen (1993: 11), "Peru passed smoothly from the Spanish mercantilist sphere into a British-dominated commercial system". From 1825 until the beginning of the XX century foreign merchants displaced hacendados as the dominant economic force in urban southern Peru. However, taking advantage of geographical isolation, hacendados retained political and economic power in rural areas where no de facto change in colonial hierarchies was found.

Within this transitional period from Vice-royalty to Republic, the appearance of new factions in dominant coalitions, namely foreign merchants and national bureaucrats, did not change the colonial sources of rents. Although wool remained the most important textile commodity, sophistication of European customers progressed and the first bundles of alpaca fibre were exported to the UK in the 1830s. It was not until 1836 that these bundles were "discovered" by English textile tycoon Titus Salt in a Liverpool warehouse (Orlove, 1977). Salt developed special machinery to industrially process and commercialize this raw material. After task completion, fibre exports soared from 57

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<sup>12</sup> The first *casa comercial* installed in Arequipa was the French Braillard in 1821, followed a couple of years later by the British Gibbs. Between 1830 and 1870, other *casas comerciales* such as Gibson, Fletcher, Forga and Stafford also opened totalling 12 during this period (Flores Galindo et al, 1977)



quintales<sup>13</sup> in 1834 to 16,500 in 1840 (Jacobsen, 1993: 135). For southern Peru this exogenous random historical event signalled the birth of the Alpaca Fibre Chain (AFC) offering the possibility of integrating indigenous subsistence economies into national and international production and trade networks.

Overall, the 1777-1839 period saw a number of political competitive processes, which sealed the transition from an Andean to a coastal economy and from a colonial to a Republican political system. The Tupac Amaru II Revolution and the Battles of Independence meant regression from a Basic to a Fragile colonial LAO which progressed back to a Basic Republican LAO once a functional bureaucracy was established in Lima. Further settlement of foreign merchants led to the consolidation of Arequipa as Peru's southern economic hub and introduced the first elements of economic competition with hacendados in terms of access to international markets. However, largely through the entrepreneurial efforts of Titus Salt, substantial demand of fibre from Britain in the late 1830s integrated these competing actors with thousands of small-scale indigenous suppliers in the highlands, thus configuring a geographically and functionally rudimentary but recognizable fibre chain structure.

#### 2.4.3. Emergence and development of the alpaca fibre chain, 1840-1929

After Salt's innovations and closure of the last colonial obrajes in the 1840s the south experienced sustained economic growth spurred by exports of textile commodities. Wool and fibre trade were initially controlled by four *casas comerciales* which shipped nearly 90% of exports to Britain (Bonilla, 1977). Although guano<sup>14</sup> became Peru's most important natural resource between 1840 and 1879, textile commodities averaged 60-65% of southern regional export shares during this period (Jacobsen, 1993: 167). At the domestic level alpaca fibre was supplied by *indios* and transported by *arrieros*<sup>15</sup> to

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<sup>13</sup> Quintal is a unit of measure used for economic transactions in the Andean highlands since the arrival of the first Spanish colonizers during the XVI century. Each quintal is equivalent to 22-23 full alpaca fleeces weighing between 45 and 50kg.

<sup>14</sup> Guano, seabird manure used as natural fertilizer, became the most important export commodity of the Peruvian economy between 1840 and 1879. With Europe as main destination, it accounted for 50% of national exports in 1847 reaching a peak of 75% in 1854 (Hunt, 1973). Fiscal revenues increased tenfold and large infrastructure projects – particularly railway transportation – were developed across the country during this period. Control for guano triggered the 1879-1883 War of the Pacific with Chile that ended with Peruvian defeat and the loss of its rich southern deposits.

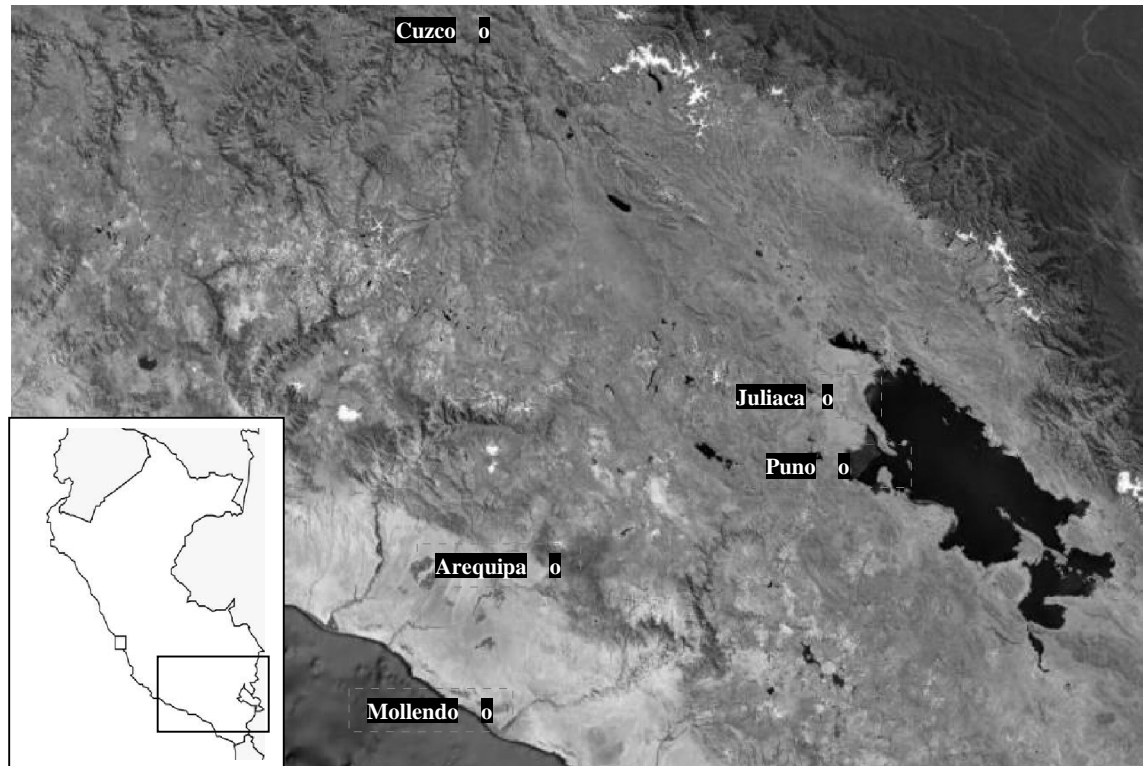
<sup>15</sup> *Arrieros* were free-roaming *indios* devoted to transportation of goods – especially minerals, wool and agricultural produce – throughout the Andes and coastal areas. Their large caravans of llamas and mules made regional trade possible from the XVI until the early XX century when more modern means of transportation displaced them from business (Lacoste, 2008)

Arequipa or purchased directly by *casas comerciales* at indigenous fairs such as Vilque in Puno. Smaller volumes of fibre were also supplied by *hacendados* who forced *yanaconas* to transport produce without compensation, an extractive institution known as *alquila*.

Fibre collection was facilitated by spontaneous emergence of a complex network of middlemen. Familiarized with their local geography and traditions, small-sized *alcanzadores* and mid-sized *rescatistas* visited hundreds of communities of fellow *indios* to collect fibre through barter or monetary exchange. Transactions at the bottom-end of the emerging AFC were founded on trust and reciprocity and business loyalties defined the relational nature of the chain. Although middlemen articulated fragmented supply with concentrated demand in Arequipa, *casas comerciales* colluded to pay fixed prices based on prices telegraphed weekly from Liverpool's wool market auctions. Therefore, rents could only be captured by skipping intermediation or transferring transaction costs downwards. These were invariably absorbed by *indios* through unequal terms of exchange. *Casas comerciales* also captured most rents from wool trade triggering hostilities from *hacendados* who elevated formal requests to Lima for protectionist measures. Nevertheless, business opportunities were widened in 1857 when fibre prices tripled those of wool and more *hacendados* decided to enter the business (Jacobsen, 1993).

During the 1860s southern Peru became "a distinct region for which the links with Liverpool were more important than those with Lima" (Jacobsen, 1983: 177). However, the textile bonanza did not distract Arequipa's political elites from rents generated by the lucrative guano industry. Political pressure backed-up by effective violence potential over Lima's central government led to the construction of the Southern Railway in 1869 and preservation of the Basic Republican LAO. Due to shortages in public funding works were interrupted in 1876 but the Mollendo-Arequipa-Puno railroad was completed. Travel times between Arequipa and Puno decreased from six days to 12 hours even though prohibitive transportation fees limited its economic impact (Contreras, 2002: 67). The railway provided a tangible geographical structure to the AFC (see Figure 3) and accelerated the expansion of middlemen who established fibre warehouses along its route.

Figure 3. The alpaca fibre axis at the end of the XIX century



Source: Own elaboration based on Google Maps

Vigorous regional economic performance and political stability ended exogenously with the 1879-1883 war with Chile. The invading army destroyed the port of Mollendo and established strict transit controls throughout Peru's provinces though not affecting foreign *casas comerciales* which continued exporting fibre through the port of Islay (Bonilla, 1974). As Table 2 shows, exports during the War of the Pacific were slightly lower than the 1875-1879 period leading to regional economic contraction and the closure of some *casas comerciales*. Renewed international demand of textile commodities in the 1890s boosted quick recovery of fibre trade, which facilitated the opening of new *casas comerciales*<sup>16</sup>. Intense economic competition among them would lead to important geographical and functional changes in the AFC until the early 1920s.

According to Flores Galindo et al (1977: 59-61) *casas comerciales* opened commercial branches at important fibre production areas in Puno and Cuzco and appointed commercial agents to recruit small and mid-sized middlemen known as *alcanzadores* and *rescatistas* to organize private middlemen networks. Fibre was collected from

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<sup>16</sup> At least 15 *casas comerciales* operated in Arequipa in the 1890s. Among the newly founded ones were the national Muñoz Najar, Emmel and Ricketts, the latter an influential regional economic player until the 1970s (Flores Galindo et al, 1977: 58)

communities and indigenous fairs but also from hacendados who were paid a premium even though indios supplied the best fibre. Speculative practices were the norm and purchase was based on volume rather than quality. Personal commitments at all transactional levels galvanized the clientelistic nature of the chain and allowed commercial agents to assume gradual control of the ramifying trade circuit. Across this hierarchical and functional division of labour a credit system known as *habilitacion* was introduced to finance purchases and additional rents were extracted through interest rates. *Alcanzadores* and *rescatistas* were “habilitated” by their agents - now *grandes acopiadores* or large fibre gatherers - who in turn were funded by *casas comerciales*. Credit was also granted to hacendados and bureaucrats in exchange of future yields or political and judicial favours.

Table 2. Ten and five-year alpaca fibre exports averages, 1830-1929

Year	Metric tons	Pounds (thousands)	Index (vol)	Index (price)
1830-1839*	342	NA	0	0
1840-1849*	1162	NA	0	0
1855-1859	978	271	100	100
1860-1864	1018	304	104.1	112.1
1865-1869	1144	344	116.9	126.8
1870-1875	1428	396	145.9	146
1875-1879	1537	331	157.1	122
1880-1884	1446	195	147.8	72
1885-1889	1694	176	173.1	65
1890-1894	1994	225	203.8	83
1895-1899	2137	254	218.5	93.7
1900-1904	2286	265	233.7	97.6
1905-1909	2351	279	240.3	103
1910-1914	2212	256	226.1	94.5
1915-1919	2649	701	270.8	258.7
1920-1924	2247	415	229.7	153.3
1925-1929	2445	482	250	178

Source: Adapted from Jacobsen (1993: 154) and Thorp and Bertram\* (1985: 85)

Higher demand from *casas comerciales* correlated positively with the proliferation and expansion of haciendas in Puno which, according to Chevalier (1966: 824), increased from 703 to 8219 between 1875 and 1915. In this regard, violence stood as a critical determinant of extreme concentration of factors of production by the hacendado dominant coalition. Unequal distribution was also observed in animal capital ownership; while herds of 6,000 alpacas were common in haciendas, ayllus averaging 50 families owned mixed herds with less than 2,000 animals (Flores Galindo et al, 1977). Hacendados continued extracting rents through *contribuciones de indios* which in spite of their formal abolition in 1854 were enforced *de facto* in Puno until 1896. In the absence of the

rule of law within a Fragile Regional LAO, rebellions erupted in the highlands in 1865-1867, 1895-1906, 1911, 1913 and 1915 but were jointly suppressed by the Peruvian army and private armies of hacendados (Fernandez, 2011: 7). In words of Haya de la Torre (2004), Peru's transition to the XX century was marked by extreme power asymmetries where 2% of real citizens composing the "Republic of Whites" ruled over 98% of nominal citizens making up the Republica de Indios.

During the Republica Aristocratica<sup>17</sup> period between 1895 and 1919, Peru enjoyed a period of relative political stability progressing to a Basic LAO. Major public investments in transportation and telecommunications infrastructure were implemented in the south including the installation of telegraph lines and the extension of the Southern Railway to Juliaca and Cuzco in 1906 (Contreras, 2002). However, through conscription vial, indigenous labour was forcefully recruited to build roads in Arequipa, Cuzco and Puno which expanded the geographical structure to the AFC. Lower transportation costs by trucks and easier access to provinces and districts moved trade away from the Southern Railway and led to the organization of hundreds of weekly fairs in the highlands. Given its connectivity and strategic location, Juliaca - which was granted city status in 1908 - consolidated its position as the regional hub for fibre collection and distribution and established direct trading links with Arequipa.

While the highlands developed commercially a small textile industry was established in Arequipa by the national government to export manufactured goods. A total of 10 plants were opened between 1900 and 1930 but lack of technological capabilities and demand for national goods led to industrial upgrading failure (Thorp and Bertram, 1985: 517). Nevertheless, exports of raw wool and fibre peaked during the First World War see Table 2) and so did the ambitions of hacendados who intensified factional conflict and land-grabbing. Between 1900 and 1920 a total of 49 indigenous revolts were registered in Puno and Cuzco, most notably the 1915-1916 Rumi Maqui Rebellion which - given its scope and scale - was the first indio uprising to attract national attention (Burga and Flores, 1997: 187). For Gascon (2000) the sum of competitive political and economic processes shaping wool and fibre market developments between the 1860s and 1920s resulted in a complex subordination structure topped by merchants, hacendados and bureaucrats in detriment of the indigenous population.

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<sup>17</sup> In Peruvian historiography, the "Aristocratic Republic" refers to a period characterized - with brief interruptions - by successive and democratic transitions of civilian rule, autonomous development and relative national political stability. The term was coined by eminent Peruvian historian Jorge Basadre in 1933 to highlight the new political role of national economic elites.

The riches brought by textile commodities to the southern economic elites came to an abrupt end with the Liverpool market crash in March, 1920. Until the first quarter of 1921 wool and fibre prices declined 55% and 30% respectively compared to their peaks in 1918 (Jacobsen, 1993: 343-344) and their combined share in national exports plummeted from 5% in 1915 to 2% in 1920 (Thorp and Bertram, 1985: 54). Hoping quick market recovery from this exogenous driver of economic change fully stocked *casas comerciales* reduced or cancelled domestic purchases while a large number of *hacendados* mortgaged their estates to obtain credit. Unfortunately prices did not recover until the mid-1930s and a large number of colonial *haciendas* were lost in hands of *casas comerciales* and powerful commercial agents. A new land-owning elite unleashed a new cycle of land and labour concentration between 1920 and 1923 which was responded with invasion of *haciendas* and assassination of *hacendados* in Arequipa, Cuzco and Puno (Fernandez, 2011). The emerging mass political parties<sup>18</sup> of Lima embraced and diffused the cause of *indios* while providing political and organizational support to their communities (*ibid*). They also introduced the concept of peasantry into national political discourse during the zenith of the *indigenismo* movement between 1926 and 1930.

Business diversification of dominant *casas comerciales* into sectors such as pharmaceuticals and mining allowed them to overcome the Liverpool collapse. In addition, through fixed purchase prices they were able to transfer costs downwards at the expense of many colonial *hacendados* who lost their estates. This process of uncreative destruction showed that fibre collection and distribution, not production, were they key nodes for controlling the AFC. Even when socio-political turmoil became endemic in the highlands during the 1920s, fibre supply continued, especially to Britain which by 1928 accounted for 67% of exports (Flores Galindo et al, 1977: 57). Nonetheless, after this period of uncertainty, earlier optimistic views of recovery<sup>19</sup> were shattered by the Wall Street crisis of 1929 which according to Jacobsen (1993) ended all chances of wool and fibre industrialization based on wage labour.

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<sup>18</sup> The Russian Bolshevik Revolution of 1917 provided the ideological template for José Carlos Mariátegui's Peruvian Socialist Party in 1927 while the American Popular Revolutionary Alliance (APRA) founded by Víctor Raúl Haya de la Torre in 1924 gained its inspiration from the 1910-1921 Mexican Revolution.

<sup>19</sup> Invited by the Peruvian Railway Company in the midst of the Liverpool crisis to conduct research on ovine and alpaca production in the highlands, the Scottish veterinarian Colonel Robert J. Stordy wrote: "A sojourn of six-months in the Republic, during which time I travelled over the entire length of the Southern Railway and visited the vast tracts of country adjacent thereto, enables me to state that the stock industry of Peru, if developed along sound and progressive lines, should prove to be the principal industry of the southern portion of the Republic" (Stordy, 1921: 119).

Between 1840 and the Wall Street crisis of 1929, the AFC experienced significant structural transformations resulting from mixed political and economic competition among urban and rural dominant coalitions. From a functional perspective, fragmented fibre supply and demand was articulated by middlemen networks who expanded rent sources through the *habilitacion* system and unequal terms of exchange with the peasantry. The construction of the Southern Railway gave the AFC a clearly recognizable geographical structure and connected Juliaca, the main fibre distribution hub, with *casas comerciales* in Arequipa. Public investment in rural roads between 1895 and 1919 prompted the development of indigenous markets and fairs throughout the highlands leading to further geographical ramification of the AFC. From an economic perspective, fibre became the most important commodity for the southern Peruvian economy until the end of the First World War, a process that unleashed a violent cycle of haciendas expansion which concentrated ownership of factors of production. Lastly, with the exception of the political struggle between Arequipa and Lima elites for redistribution of guano rents in the 1860s and the 1879-1883 War of the Pacific which led to temporary regression from a Basic to a Fragile Republican LAO, structural transformations stemmed from competitive processes endogenous to the AFC. Yet, exogenous crises of great magnitude, namely Liverpool in 1920-21 and Wall Street in 1929 brought the golden age of fibre production and trade and hopes for industrialization to an abrupt and irreversible end.

#### 2.4.4. Modernization and privatization of the alpaca fibre chain, 1930-1968

At the dawn of the 1930s fibre had lost all relevance for the national economy and haciendas and *casas comerciales* resumed wool production and trade. Yet, opportunities offered by a competition-free market were spotted by Michell & Co. which in 1931 became the first *casa comercial* to specialize in fibre trade. Standing as an example of classical entrepreneurial surge and applying the lessons of the Liverpool aftermath, Michell forged close ties with *grandes acopiadores* based in Juliaca to control and secure supply while haciendas invested in agricultural technology and infrastructure. They also provided basic services to *yanaconas* to prevent internal insurgencies (Jacobsen, 1993). However, although the Constitution of 1933 had granted legal recognition to peasants' communities, land expropriations continued because as Sheahan (1999: 24) observes "laws meant little when they ran against deeply entrenched resistance by opposing groups with political weight".

Between 1876 and 1940 Peru's population increased from 2.7 to 6.2 million (Flindell Klaren, 2000: 433). Cornered in the poor pastures of the highlands after centuries of expropriations and displacements, peasants fell into a Malthusian trap which prompted massive rural-to-urban migrations. To them, unlike *casas comerciales*, *hacendados* and middlemen, downgrading or exit strategies equalled to death by starvation. Coastal urban areas, particularly Lima and Arequipa, experienced fast urbanization to absorb these unwelcomed masses (Matos Mar, 1984). Peasants' mobilizations demanding land redistribution and provision of basic services<sup>20</sup> intensified between 1945 and 1948 with active support from mass political parties which provided the ideological and organizational foundations of the first peasant unions, most notably the General Federation of Peasants and Yanaconas of Peru in 1947 (Fernandez, 2011).

As social unrest progressed, the Second World War did not replicate the golden age experienced by *casas comerciales* between 1915 and 1919 (see Table 2). With fishmeal and mining as main export commodities, the Peruvian government embraced open markets and foreign direct investment to finance housing and transportation infrastructure (Sheahan, 1999; Thorp and Bertram, 1985). Within this period of national modernization Michell installed its first textile plant in Arequipa in 1947 for the production of fibre tops and yarns. Through product and process upgrading it became the first *casa comercial* to access the US market which soon displaced the UK as main export destination. These events were followed by the inauguration of the Experimental Centre of La Raya in 1950 which became the first state-sponsored institution to conduct scientific research on SACs (Bonavia, 2009).

Robust international demand and higher quality requirements from foreign customers opened doors for the new specialized *casas comerciales* Sarfaty in 1954 and Pattey & Corzo in 1957. With large middlemen networks controlled by Michell, better purchase prices were offered by the new entrants to challenge loyalties in Juliaca and direct contact was established with *alcanzadores* and *rescatistas* to organize new networks. Economic competition also led to the development of non-compatible private quality standards based on fibre width and colour alongside the diffusion of a *de facto* *tui-adulto* standard applied to small-scale producers in which a premium was paid for fibre from *tuis*, name given by peasants to alpacas aged two years or less. Further quality

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<sup>20</sup> In 1940, 58% of the population – mostly Quechua-speaking Peruvians – was illiterate (Instituto Cuanto, 1991: 153 quoted by Sheahan, 1999: 20).



requirements from Italian and French fashion firms in the 1960s reduced shearing practices from two or more to one per annum in order to achieve adequate fibre length for industrial processing. As a result, fibre production, collection and distribution became seasonal activities concentrated between the rainier and warmer months of October and March.

By 1961 Peru exhibited South America's most unequal distribution of income and wealth<sup>21</sup>. For instance, 700 haciendas concentrated nearly one third of the country's productive land in contrast to 1.25 million peasant families who owned less than a quarter (Flindell Klaren, 2000: 324). With growing rural immigration and peasants' mobilizations, sales of haciendas increased between 1950 and 1964; 1962 alone registered 413 peasant uprisings and 70 invasions of haciendas (Fernandez, 2011: 10). Mounting political pressure led to state repression of peasant unions and communities which far from quitting demands radicalized them<sup>22</sup>. The resulting agrarian reform of 1964 was, in words of Kay (2000: 12) "confined to only those areas where rural conflicts were most intense" where "by distributing land to insurrectionary peasants the government hoped to buy social peace".

Gradual private control of the AFC in hands of specialized *casas comerciales*, fibre's marginal importance for the national and regional economies and geographical isolation of small-scale producers protected the chain from the spiral of rural violence that characterized the 1960s. Relative stability allowed Pattey & Corzo (henceforth Incatops) to open its first textile plant in 1965 showing that upgrading possibilities were only available to those at the top end of the chain. At the national level a shared popular belief that the nation had been sold to foreign interests triggered virulent nationalism, which coupled with widespread socio-political unrest, laid the conditions for a military-led state coup in 1968.

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<sup>21</sup> Peru's rural population was the poorest segment of society. According to Matos Mar and Mejia (1980: 66) it was 66% of the national total in 1961 down from 75% in 1940 and down to 50% in 1972.

<sup>22</sup> Two guerrillas inspired by the Cuban Revolution - the Revolutionary Left Movement (MIR) and the National Liberation Army (ELN) - emerged between 1964 and 1965. Based in Cuzco they engaged in armed conflict with the Peruvian army but were rapidly suppressed.

#### 2.4.5. Reform and collapse, 1969-1989

On June 1969, the military government proclaimed the Reforma Agraria to materialize the demands of a peasantry long denied by the agricultural law of oligarchy. Through land redistribution, the reform attempted to bridge the gap between capitalist and informal pre-capitalist modes of production. A total of 8.5 million hectares occupied by haciendas - 60% of Peru's agricultural land - were adjudicated to 375,000 peasants or 25% of rural families of which 140,000 were former yanacunas and colonos (Flindell Klaren, 2000: 346-347). Most expropriations proceeded in peaceful terms and hacendados were offered 30-year government bonds as compensation<sup>23</sup>. To facilitate land transfers, peasants were organized by the army into collectivist production units known as Agrarian Production Cooperatives (CAPs) in the coast and Agrarian Societies of Social Interest (SAIS) in the Andes which jointly received 76% of expropriated land while the rest was distributed among communities as small individual plots (Matos Mar and Mejia, 1980: 66).

Inspired by Latin American structuralism, the Reforma Agraria was one of the most important reforms of the 1970s alongside infant industry protection and nationalization of key productive sectors such as oil and mining. It put an end to 400 year old haciendas and its extractive economic institutions including yanacuna. This period was also characterized by state-sponsored mobilization and unionization of labour, most notably the foundation of the 200,000 member-strong National Agrarian Confederation. But the AFC was not immune to state intervention. The Alpaca Peru State Company (APSC) was created in 1975 to eliminate intermediation through direct purchases from small-scale producers who - estimated at 200,000 - were responsible for 80% of national fibre supply (Flores Galindo, 1977: 19). In terms of national production, according to Flores Ochoa (1975: 47) between 1973 and 1976 total output averaged 2.5 metric tons per annum of which 90% was exported to US and Europe, 65% as raw fibre and the rest as tops and yarns.

The APSC achieved control of 40% of Arequipa's fibre trade posing a threat to the Michell-Sarfaty duopsony and with minor participation of other casas comerciales such as Incatops, Ricketts and Gibson (Guerrero, 1986: 62-65). Yet, volumes and quality of fibre purchased from SAIS paled in comparison to fibre supplied by small-scale

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<sup>23</sup> As of June 2014, bond-holders are still waiting for payment.

producers largely excluded from the reform. Transfer of land but not of capital, technology and knowledge explained the low productivity of SAIS. At the top-end of the AFC, *casas comerciales* outmanoeuvred the state through close ties and personal commitments with Juliaca's *grandes acopiadores*. At the bottom-end, its relational nature - hardened over several decades of barter and transactions - also proved too strong for the heavily subsidized APSC; in contrast to the state and in spite of abusive transactional conditions, landless peasants knew well that *alcazadores* and *rescatistas* would always purchase their fibre. Private governance protected the AFC from the pitfalls of nationalization and allowed dominant *casas comerciales* to increase their production with new textile plants in Arequipa and Tacna.

When the last haciendas disappeared in 1979 so did the expectations of the peasantry for a reform that failed to deliver its promises. Less than a third of the rural population benefited and declining productivity of SAIS was aggravated by mismanagement and corruption leading to factional disputes among member communities. Moreover, the inability of the APSC to control the complex logistics of fibre trade meant its rapid exit from the chain. But above all, state absence rather than interventionism proved to be most damaging for the fibre sector; due to illegal poaching the alpaca population decreased from 3.5 million to 2.8 million animals between 1968 and 1974 (Flores Ochoa, 1977: 41)<sup>24</sup>. For the national industry in general, shortages in private investment and savings resulted in economic depression (Wise, 2003).

Transition from military dictatorship to democratic civilian rule in 1980 signalled the turn from an exhausted Imports-Substitution-Industrialization (ISI) model to neo-structuralism. The unsupervised redistributive process that followed the *Reforma Agraria* led to disintegration of many CAPs and SAIS and further atomization of land and animal herds. In addition, the social and political vacuum left by the oligarchical power in the highlands coupled with masses of disenfranchised, excluded and landless peasants propelled the emergence of the Shining Path (Kay, 2000). In words of Degregori (1990), rather than seeking peasant welfare the goal of this Marxist-Maoist terrorist organization was to build an entirely new social, political and economic order over the rubbles of the Peruvian state.

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<sup>24</sup> Bonavia (2009: 464) estimates that 75% of illegal poaching was carried out in Puno alone.

Initially confined to the department of Ayacucho, terrorist violence stirred with class-struggle and anti-imperialist discourses rapidly spread to Peru's central and southern regions. Systematic killings of local and provincial bureaucrats, judges, and policemen as well as destruction of energy, transportation and telecommunications infrastructure paralyzed regional production and trade. Moreover, infiltration and ideological indoctrination at universities, unions and peasant communities forced the retreat and disintegration of formal political organizations. Terrorist control over the highlands was tightened through the establishment of *zonas liberadas* or state-free zones where *paros armados* or "armed strikes" were regularly enforced to undermine the state's authority. Violence intensified in 1984 and progressed unchallenged by an inept and rent-seeking state leading the country's LAO to regress from Basic to Fragile.

Following the presidential election of 1985, the all-out populism and heterodox interventionism of the incoming government deepened Peru's socio-political and economic crisis (Sheahan, 1999; Wise, 2003). Private investment vanished and external borrowing was channelled towards crumbling public services and industries. Although the peasantry had initially volunteered to join the Shining Path, forced conscriptions replaced personal will and "traitors" invariably faced execution. Punishments were extended to families and entire communities who saw their animal herds - for most their single source of income - slaughtered. Without state support, the peasantry organized *rondas campesinas* or self-defence committees which offered little resistance to the better armed terrorist organizations (Kay, 2000: 15). If the Malthusian trap had triggered massive rural-to-urban migrations during the 1940s-70s, domestic violence catalysed this process during the 1980s (Matos Mar, 2004, Sheahan, 1999).

Nevertheless, Peru's annual output of fibre during the 1980s averaged 3,400 metric tons corresponding to 80% of the world's output of which 70% was exported and the rest processed by local artisans (Bonavia, 2009: 409). However, within the Hobbesian political environment of the highlands, every node across the input-output structure of the AFC was affected. From a geographical perspective, destruction of roads, bridges and electric towers led to fragmentation and isolation of local and provincial markets. From a functional perspective, fear arising from violence severed market and social relations and eroded the stock of social capital. Middlemen networks were disrupted and costs of fibre collection and distribution increased substantially. With the exception of few *casas comerciales* such as Michell, PROSUR (formerly Sarfaty) and Incatops the remaining ones were forced to exit.

#### 2.4.6. Re-composition and globalization, 1990-2011

The 1968-1989 period saw markets and economic activity fully subsumed under the realm of politics (Sheahan, 1999; Wise, 2003). Following military rule, a decade of political violence led to the worst economic and social crisis of Peru's republican history taking the lives of 20,000 people and displacing 200,000 more from their homelands (Sheahan, 1999: 76). On the economic front, systemic destruction of the productive base was followed by hyperinflation which skyrocketed from 1727% in 1988 to 7482% in 1990 (Flindell Klaren, 2000: 395). Within this fragile order, the new government of 1990 embraced free market reforms to reverse state interventionism, encourage foreign investment and privatize state-owned companies. Measures to combat terrorism included full-scale involvement of the army as well as provision of weapons and legalization of *rondas campesinas* to achieve national pacification (Kay, 2000).

Initial state efforts paid particular attention to rural areas. Promulgation of Laws 653 and 657 in 1991 authorized sales and mortgages of rural land to encourage private investment. The Proyecto Especial de Titulacion de Tierras (PETT) - a nationwide cadastre and land titling programme<sup>25</sup> - was implemented a year later in a context of extreme land fragmentation, low productivity and informality. The Constitution of 1993 - Peru's 11<sup>th</sup> since 1821 - furthered reforms by authorizing commercial transactions of communal land to third parties which accelerated dissolution of surviving peasant cooperatives and reduced transaction costs inherited from the *Reforma Agraria*. For fibre stakeholders, this new institutional architecture was complemented by the creation of the National Council for South American Camelids (CONACS) in 1992, the first state agency specialized in sectorial policy design and implementation.

As Sheahan (1999: 3) observes "the first half of the 1990s brought considerable relief and hope, with much lower inflation and violence, and with a recovery in production". Indeed, capture of the Shining Path's leadership in 1992 and control of hyperinflation down to 410% in 1991 and 9% in 1997 accelerated Peru's progression to a Basic order.

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<sup>25</sup> Under guidance of the Institute for Liberty and Democracy led by economist Hernando De Soto, the Peruvian government undertook a nationwide land titling programme with the Formalization Commission of Informal Property (COFOPRI) as PETT's counterpart in urban areas. Its aims were threefold: (i) formalize land ownership; (ii) establish a low cost registry for titles granted, and; (iii) enable access to private and public sources of credit to title holders. Following PETT's merger with COFOPRI in 2008, Zegarra et al (2008: 4) estimate that 40% of 2.5 million rural plots registered by PETT - excluding communal lands - were formalized. For a better understanding of the theoretical arguments for land formalization in the developing world consult De Soto (2000).

Functional and geographical reconstruction of production and trade circuits followed including the AFC which saw its weekly fairs flourish again, especially in Macusani and Ñuñoa in Puno and Sicuani in Cuzco. Higher stocks of social capital opened the door to national and international non-governmental organizations (NGOs) for the provision of training and technical assistance to peasant communities<sup>26</sup>. Yet, the 1990s remained a difficult period for small-scale producers as Michell, PROSUR and Incatops – now fully fledged Large Textile Industries (LTIs)– colluded to fix fibre prices. Although various international crises affected Peru’s export-driven economy during the 1990s<sup>27</sup>, LTIs were able to cope through long-term international contracts and speculative practices such as overstocking for price manipulation. Moreover, Michell and Incatops achieved vertical integration with the foundation of genetic improvement farms in Puno in the early 1990s. Quality supply became a commercial imperative due to competition from substitute fine fibres such as cashmere, angora and mohair.

Economic crisis and dependency of small-scale producers on middlemen networks moved the state to implement a regional programme of direct purchases in 1997 spearheaded by CONACS and the Ministries of Agriculture (MINAG) and Industry, Tourism and Trade (MITINCI). Until 1998 over 40 State Collection Centres (SCCs) were installed throughout the central and southern Andes alongside the introduction of a fibre quality standard developed by MITINCI aimed at discouraging the tui-adulto volume-based trade. Prices paid by state agents increased 110% and triggered opportunistic behaviour from private investors who founded mid-sized private production units<sup>28</sup>. Prices offered by LTI’s increased 40% but could not match public subsidies and middlemen were displaced from trade circuits (Torres et al, 2011).

Fibre collected at SCCs was distributed to national textile industries in Lima but also to regional small textile industries and microenterprises born during the artificial fibre bonanza but state subsidies proved financially unsustainable and were discontinued in

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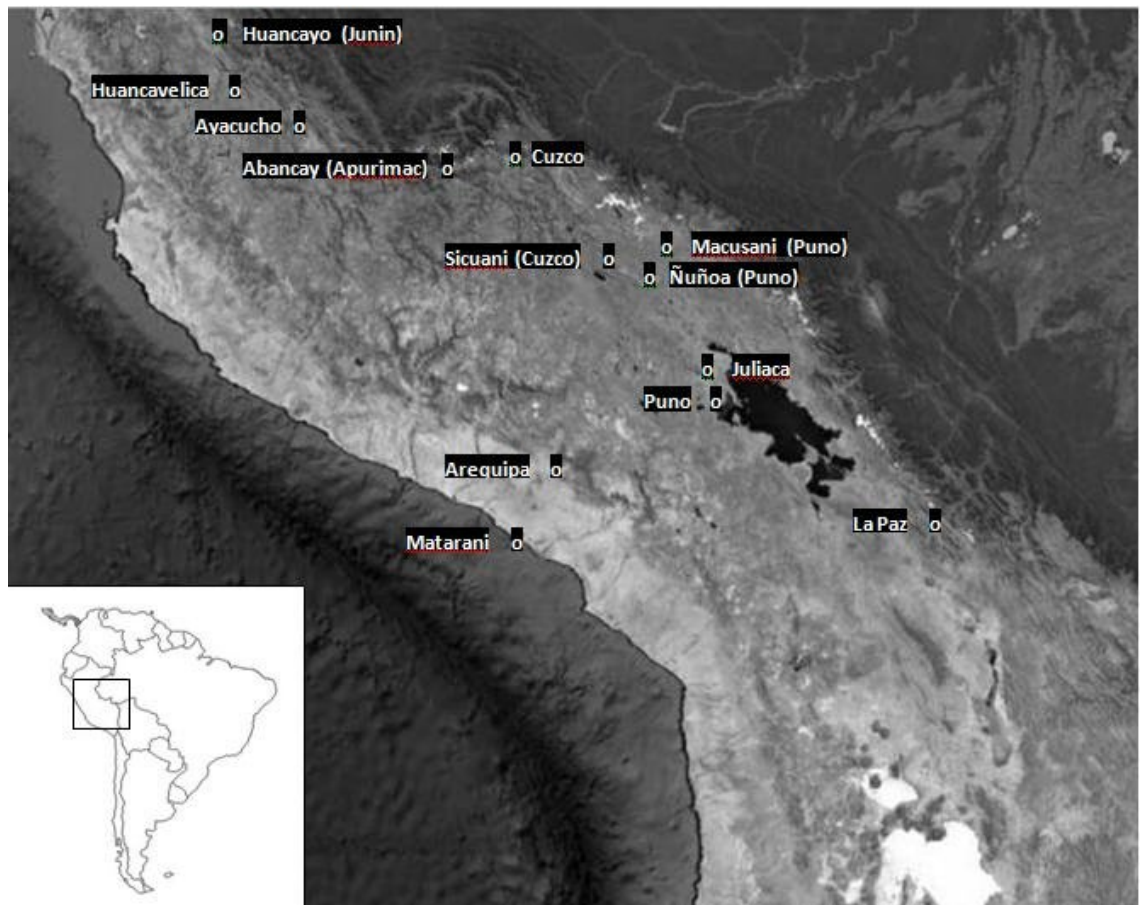
<sup>26</sup> A number of national NGOs involved in the fibre sector were founded in the 1960s but the scope and scale of their interventions was marginal and political violence forced them out of the AFC during the 1980s. Among the most important national NGOs involved in the AFC are DESCO and PRISMA founded in 1965 and 1989 respectively. International agencies such as Agronomes et Vétérinaires Sans Frontières (AVSF) and the UK based Practical Action (now the Peruvian Soluciones Practicas) began operations in Peru in 1978 and 1985 respectively and are still active in the southern highlands.

<sup>27</sup> Most notably the 1994-1995 Mexican peso crisis, 1997 Asian financial crisis, 1998 Russian financial crisis and 1998-1999 Brazilian currency crisis.

<sup>28</sup> Although no official criteria is available, the Regional Agrarian Direction (RAD) of Puno considers small, mid-sized and large production units those owning herds of 1-199, 200-799 and 800+ animals respectively.

1999. Although direct purchases temporarily reduced supply fragmentation, strengthened organizational capabilities of the peasantry and expanded fibre trade circuits to the departments of Apurimac, Ayacucho, Huancavelica and Junin (see Figure 4) no sustainable incentives were provided for quality improvement. Diffusion of the MITINCI standard was confined to SCCs thus leading to low adoption rates. After state exit LTIs resumed vertical chain relations and middlemen networks continued paying fixed prices based on volume to small and mid-sized producers. Extractive economic institutions such as *habilitacion* and unequal terms of exchange consolidated the captive-relational nature of the AFC. Nonetheless, large-scale producers who now supplied 5% of total output (Brenes et al, 2001) were able to negotiate semi-formal contracts with competing LTIs but subject to *tui-adulto* standards.

Figure 4: Alpaca fibre production and trade circuit, 1990 to present



Source: Own elaboration based on Google Maps

In 2001 fibre represented 1.35% of national exports worth US\$71 million; 80% corresponded to low value-added goods exported to China, Italy and the US while the remaining 20% were final goods exported to the US, Germany and UK (MINCETUR, 2012). Diversification of export destinations – now shipped from the modern port of Matarani in Arequipa - and international economic competition brought by substitute fibres expressed two major structural transitions of the AFC. From a geographical perspective, expansion to Asian markets signalled the transition from an international to a global chain while foreign demand placed quality at the functional core of the national fibre industry. In response to these competitive pressures a proposal from LTIs to CONACS in 2001 led to the creation of the Peruvian Institute of Alpacas and Camelids (IPAC), the AFC's first public-private organization in charge of market coordination, quality promotion and top-to-bottom technological transfer.

Launched by IPAC and CONACS in 2002 the National System for Collection and Commercialization of Alpaca Fibre (SNARF) program introduced the Peruvian Technical Norm (PTN). The purpose of SNARF was to reduce supply fragmentation, discourage barter and volume-based trade and increase quality of supply through differential prices based on fibre width and colour. With technical support from NGOs and regional governments<sup>29</sup>, small-scale producers organized and managed Local Collection Centres (LCCs) to conduct fibre auctions open to LTIs, small textile industries and state agents among others. Market-oriented peasant organizations and associative enterprises such as the Central Alpaca Cooperatives of Puno (CECOALP) founded in 2003 and the Peruvian Society of Alpaca and Llama Breeders (SPAR) founded in 1996 achieved organizational strength through SNARF. After two years of trials and successful public auctions the PTN standard was formally endorsed by the government in 2004.

Improved market coordination and product upgrading were marginally achieved after completion of SNARF in 2004. Small and mid-sized producers complained about withdrawal of LTIs from purchases at LCCs while the latter denounced producers' malpractices such as inadequate fibre classification. Moreover, only 10-20% of the AFC's 160,000 small-scale producers were organized into LCCs while the rest remained scattered in the highlands unaware of the PTN. These producers owned more than 90% of herds and supplied nearly 85% of total output (Brenes et al, 2001; de los Rios, 2010) but

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<sup>29</sup> Geopolitical reforms progressed alongside AFC developments with the promulgation of Law 27867 – Organic Law of Regional Governments - in November 2002 which transformed Peru's departments into 26 administratively independent regions.



remained captive to middlemen who relentlessly enforced the tui-adulto standard. Given limited human and financial resources IPAC was unable to reverse historically rooted and systemic “market” failures. Moreover, financial dependence on LTIs eroded trust from producers who complained that IPAC’s decisions were solely based on industrial interests.

Following deactivation of CONACS in 2007, Regional Agrarian Directions (RADs) – decentralized units of the Ministry of Agriculture – became actively involved in the alpaca sector in Apurimac, Arequipa, Ayacucho, Cuzco, Huancavelica, Junin and Puno. Since their creation in 2002 and in cooperation with national and international NGOs, RADs provided technical and commercial assistance to small-scale producers. Acting as political counterweight to the oligopolic/oligopsonic LTIs, RADs facilitated alliances between small-scale producers and small textile industries to supply-upgrade production and open access to foreign markets. However, the 2008 Global Financial Crisis severely affected the AFC with prices plunging 40-60% at LCCs and the rural hinterland<sup>30</sup> forcing the central government to approve an emergency fund for small-scale producers through Agrobanco in early 2009.

With a seed capital of US\$9.5 million Agrobanco provided credit in exchange of fibre to small-scale producers most vulnerable to the crisis. Conditions for borrowers included joining and trading fibre at LCCs and categorizing it under the PTN. Affiliation to LCCs increased but most probably as a result of easy access to public funds. National and international markets began recovery in 2011 when exports totalled US\$109 million, 75% as intermediate goods and 25% as high value-added ones with China and the US as main destinations respectively (MINCETUR, 2012). That year also saw the merger and acquisition of PROSUR by Incatops and the establishment of a de facto duopoly/duopsony with Michell as both LTIs now control 80% of domestic fibre purchases and over 90% of exports (Fairfield, 2006; de los Rios, 2010).

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<sup>30</sup> During the October 2004-April 2005 shearing and trading season, middlemen applying the tui-adulto standard paid s/.7-8 for a pound of tui and s/.6-7 for adulto fibre while prices paid at LCCs under the PTN ranged from s/.6.5 to s/.9.5 for fine and extra-fine fibre. During the 2007-2008 season, prices peaked at s/.10-12 and s/.8-10 for tui and adulto fibre while PTN prices ranged from s/.10 for fine fibre to s/.15.5 for extra-fine one. In November 2008, at the beginning of the 2008-2009 season, tui and adulto fibres were purchased at s/.6-7 and s/.5-6 respectively while prices for fine and extra-fine fibre under PTN categorization decreased to s/.6.5 and s/.7.5 respectively (SPAR, 2005; Aguilar, 2011; de los Rios (2012). The US Dollar (\$) : Peruvian Nuevo Sol (s/.) average exchange ratio between October 2004 and November 2008 was 1:3.

In comparative terms, the 1990-2011 period stands as the most inclusive for bottom-end actors in the fibre chain's history in terms of market engagement and upgrading opportunities. Aggressive political and economic state reforms, the former aimed at bringing peace and stability and the latter at reducing hyperinflation and reinserting the country into the global economy, succeeded after painful implementation and widened chain participation, most notably for regional state agencies and civil society organizations. These chain facilitators have provided political and market opportunities for fragmented producers - particularly since the early 2000s - through provision of technical and organizational training and assistance. In addition, reconstruction of fibre production and trade networks as well as state subsidies during the 1990s also prompted the emergence of mid-sized and large collective producers, specialized sectoral agencies such as CONACS and a cluster of small textile industries based in Arequipa, thus forging novel chain linkages and governance dynamics.

Nevertheless, competition from substitute fine animal fibres expressing international demand for quality has exogenously triggered two major structural shifts in the fibre chain. First, LTIs have expanded export destinations to Asia marking a transition of the fibre chain from an international to a global one. Second, the introduction of national quality standards in 2002 has resulted in product and process upgrading opportunities not restricted to LTIs as expressed by the emergence of peasant-managed Local Collection Centres of fibre and exports of value-added goods by small textile industries to international markets. Lastly, although dominance of the price-setting LTI duopsony remains undisputed, aggregate effects stemming from the chain's major geographical and functional transformations during this period may lead to redistribution of market power at the local-to-national level.

## 2.5. Applied Embedded Framework

In this section I operationalize the Embedded Framework through identification, tabulation and codification of information provided by the historical narrative. Codified information is then summarized through descriptive statistics to inform the four theoretical propositions of this investigation. Results from codified information in the Embedded Framework for the historical periods covered between 1532 and 2011 are shown in Tables 3 and 4 respectively. Each of the six columns - three in each table - corresponds to each of the six periods covered in this study. These periods are divided by structural transitions identified in the seventh row and complemented by long-term

structural transformations contained in the eighth row. Rows one to four correspond to the embedded units of analysis presented in Section 2.3, namely; (i) political institutions and actors governing interactions among dominant coalitions and subordinates; (ii) economic institutions and actors governing fibre production and trade; (iii) dominant coalitions at local, regional and national (Vice royal) levels; and, (iv) fibre, factors of production, and related commodities corresponding to rent sources..

Competitive processes identified throughout the historical narrative for each of the six periods compose the fifth row and are codified according to their form – political (P), economic (E) or mixed (P/E) when no clear distinction can be made between (P) and (E) – as well as their type – exogenous (Exo) or endogenous (Endo) events to the fibre chain – in order to facilitate codification. Structural changes generated by these competitive processes are incorporated in the sixth row and are also classified according to their form – geographical (G), functional (F) or coupled (G/F) when no clear distinction can be made between (G) and (F) – for each period under study. The fifth and sixth rows jointly constitute the analytical focus (AF) of the Embedded Framework resulting from the superposition of the three lenses – economic, political and historical – presented in Figure 1. Overall, nomenclature for codification follows the conceptual definitions and methodological procedures outlined in Sections 2.2 and 2.3. and Subsection 2.3.1.

Political and economic actors and institutions of the fibre chain as well as its dominant coalitions and rent sources are identified and incorporated into the Embedded Framework from the historic-analytic narrative presented in the previous section. For instance, for the period 1532-1776, *encomiendas* played a political role by organizing the newly conquered indigenous labour force but also played a major economic role by extracting rents from them through land expropriation, taxation and surplus value of labour. These events merit consideration of *encomiendas* as political and economic institutions. Moreover, alongside *caciques* and priests they conformed one of the two dominant coalitions identified during this period as shown in the third row, Indigenous resistance to the extractive arrangements enforced by *encomenderos* led to political competition<sup>31</sup> among them roughly between 1532 and 1542 as the historical narrative will inform. This competitive process was exogenous simply because no recognizable geographical or functional structure of the fibre chain could be identified at this point in

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<sup>31</sup> Please refer to pages 25-26 for definitions used to classify competitive processes as political and/or economic.

time. Therefore, this competitive process corresponds to the first one incorporated in the fifth row for the 1532-1776 period and codified as (P)-Exo for the specified years.

In terms of structural changes numbered in the sixth row, the political and exogenous competition previously explained led to four structural changes codified as → 1, 2, 4 and 5, namely depopulation, displacement and fragmentation of indios and herds, a structural change of geographical form (codified as 1-G) as well as concentrated ownership of factors of production by encomenderos, division of labour based on race and social class and indigenous labour tied to land of functional form, codified as 2-F, 4-F and 5-F respectively. The same subjective but historically informed criteria have been applied at each row for each of the six periods under study following the conceptual definitions and methodological operations outlined in sections 2.2. and 2.3. as well as Subsection 2.3.1. The aggregate identification, tabulation and codification procedures for the six periods under study are shown in Tables 3 and 4.

Table 3: Embedded Framework, 1532-1929

	Old colonial rule and institutional foundations of inequality 1532-1776	Political transition in the highlands 1777-1839	Emergence and development of the Alpaca Fibre Chain (AFC) 1840-1929
Political institutions and actors	Encomiendas Viceroyalty of Peru - colonial bureaucracy (since 1542) Corregimientos, cabildos and Audiencia de Lima Catholic Church Indios	Viceroyalty of Peru (until 1821) Intendencias Republic of Peru - national bureaucracy (from 1821) Haciendas Indios	Republic of Peru - national bureaucracy Mass political parties Indios Haciendas
Economic institutions and actors	Encomiendas and haciendas Obrajes Reduccion de indios Taxes on indios Repasamientos mercantiles Mita and yanaconaje - indios	Haciendas Obrajes Foreign casas comerciales (since 1820s) Contribuciones personales Yanaconaje - indios	Foreign and national casas comerciales Commercial agents and middlemen Haciendas Contribuciones Personales Conscripcion vial Yanaconaje - indios
Dominant Coalitions	Encomenderos-caciques (priests) Hacendados-corregidores (alcaldes-caciques-priests)	Hacendados-corregidores (alcaldes-caciques-priests) Foreign casas comerciales in urban areas Hacendados-national bureaucrats in rural areas	Foreign casas comerciales in urban areas National casas comerciales and commercial agents (grandes acopiadores) Hacendados-national bureaucrats in rural areas
Rent Sources	Land Taxes Surplus value of indigenous labour Commodities (silver, wool and agriculture) Unequal terms of exchange	Land Taxes Surplus value of indigenous labour Commodities (wool, agriculture and fibre) Unequal terms of exchange	Land Taxes Surplus value of indigenous labour Commodities (guano, fibre and wool) Unequal terms of exchange Habilitacion and credit Intermediation (fixed prices based on volume)
Competition: Political (P) Economic (E) Mixed (P/E) Exogenous Endogenous	(P)-Exo: Encomenderos subordinate indios, 1532-1542 → 1, 2, 4, 5 (P)-Exo: Viceroyalty subordinates encomenderos, 1542-1548 → 3, 4, 5, 7 (P)-Exo: Hacendados subordinate indios, 1550s-1776 → 1, 2, 3, 4, 5, 6, 8 (P)-Exo: Among hacendados, 1600-1650; 1750-1776 → 1, 2, 8 (P)-Exo: Indios vs hacendados, 1724-1736; 1751-1756 → No structural change	(P)-Exo: Tupac Amaru Revolution, 1780-1782 → 8 (P)-Exo: Viceroyalty vs corregidores and caciques, 1784-1790 → 1, 5 (P)-Exo: Battles of independence from Spain, 1810-1824 → 2, 5, 7 (P)-Exo: Among hacendados, 1777-1780; 1790-1820s → 5 (P/E)-Endo: Foreign casas comerciales vs hacendados, 1821-1839 → 4, 6, 8	(P/E)-Endo: Foreign casas comerciales vs hacendados, 1821-1880s → 1, 5 (P/E)-Endo: National vs foreign casas comerciales, 1880s-1920s → 6, 7, 10 (P/E)-Exo: Arequipa's political elite vs Lima, 1850s-1920s → 2, 7, 12 (P/E)-Exo: War of the Pacific, 1879-1883 → 3, 4 (P/E)-Endo: Hacendados subordinate indios, 1850-1921 → 9 (P/E)-Endo: Among hacendados, 1914-1920s → 9 (P)-Endo: Indios vs hacendados, 1865-1915 → No structural change (P/E)-Endo: Casas comerciales/agents vs hacendados, 1890s-1929 → 6, 7, 11
Structural Change: Geographical (G) Functional (F) Coupled (G/F)	1. Depopulation, displacement and fragmentation of indios and herds (G) 2. Concentrated ownership of factors of production by elites (F) 3. Incipient monetization of colonial economy (F) 4. Division of labour based on race and social class (F) 5. Indigenous labour tied to land (F) 6. Indigenous subsistence economy through barter (F) 7. Potosi-Lima axis (G) 8. Expansion of haciendas (G)	1. Political and commercial isolation of the highlands (G/F) 2. Transition from an Andean to a coastal based national economy (G/F) 3. Puno, home to 50%+ of alpaca herds, reincorporated to Peru in 1796 (G) 4. Closure of obrajes and downgrading of hacendados (F) 5. Partial recomposition of ayllus (F) 6. Arequipa becomes southern Peru's economic hub (G/F) 7. Liberal Agrarian Reform, individual property rights to indios (1821-1825) (G/F) 8. Contraction of haciendas (G)	1. Fibre/wool become the south's main export commodities (UK) (F) 2. The Mollendo-Juliaca Southern Railway constitutes the AFC axis (G) 3. Disruption of AFC production and trade circuits (G/F) 4. Exit of national casas comerciales (F) 5. Collusion to fix fibre purchase prices (F) 6. Development of vertical and competing middlemen networks (F) 7. Ramification of the AFC through roads and/or middlemen networks (G) 8. Organization of hundreds of weekly fairs in the highlands (G/F) 9. Expansion of haciendas (G) 10. Diffusion and adoption of de facto hacendado-indio standard (F) 11. Juliaca becomes the hub for fibre collection and distribution (G) 12. Failed industrialization of textile sector in Arequipa (F)
Transitions	Creation of Viceroyalty of La Plata (1776)	Large volumes of fibre exported to the UK by Titus Salt (1839)	Liverpool wool (1920-21) and Wall Street (1929) market crashes
Transformations	Institutional foundations but no geographically or functionally recognizable structure of the AFC		Geographically and functionally structured AFC

Source: Own elaboration

Table 4: Embedded Framework, 1930-2011

	Modernization and privatization of the AFC 1930-1968	Reform and collapse 1969-1989	Re-composition and globalization 1990-2011
Political institutions and actors	Republic of Peru - national bureaucracy Mass political parties Peasant Unions	Republic of Peru - national bureaucracy Terrorist organizations (Shining Path and MRTA) State-sponsored peasant cooperatives and unions	Republic of Peru - national bureaucracy Regional Governments - regional bureaucracy Civil Society Organizations (CSOs) Peasant organizations
Economic institutions and actors	Fibre specialized casas comerciales (Michell, Sarfaty and Pattey & Corzo) Grandes acopiadores and middlemen Merchant-owned haciendas Yanaconaje - peasants Small-scale producers	Peasant collective production units (SAIS in the highlands) Fibre specialized casas comerciales Grandes acopiadores and middlemen Small-scale producers	Large Textile Industries (LTIs) (former specialized casas comerciales ) Grandes acopiadores and middlemen Small textile industries Large and mid-sized producers Small-scale producers
Dominant Coalitions	Haciendas -national bureaucrats Specialized casas comerciales-grandes acopiadores Central government	Military government (1968-1980) - Central government (1980-1990) Terrorist organizations Specialized casas comerciale s-grandes acopiadores	Central government Terrorist organizations Large Textile Industries - grandes acopiadores Regional governments-CSOs
Rent Sources	Land Commodities (mining, wool and fibre) Habilitacion Intermediation (market prices, purchases based on volume) Unequal terms of exchange Surplus value of indigenous labour	Land Fibre Habilitacion Intermediation (market prices, purchases based on volume) Unequal terms of exchange State subsidies	Fibre State subsidies Habilitacion Intermediation (fixed prices based on volume) Unequal terms of exchange
Competition: Political (P) Economic (E) Mixed (P/E) Exogenous Endogenous	(E)-Endo: Among specialized casas comerciales, 1931-1968 → 4, 5, 6, 7, 8 (P/E)-Endo: Among hacendados, 1930s-1950s → 1, 3 (P)-Endo: Peasants vs haciendas, 1930s-1968 → 1, 2, 3, 9 (P)-Endo: Central government vs haciendas, 1964-1965 → 9	(P)-Endo: Military government vs haciendas, 1969-1979 → 1, 2, 3, 4, 7, 10 (P)-Endo: Peasants vs haciendas, 1969-1979 → 1, 7, 10 (P)-Endo: Military government vs casas comerciales, 1975-1977 → 5, 8 (P)-Exo: Terrorist orgs. vs central govt., 1980-1990 → 6, 7, 8, 9, 10, 11, 12 (P)-Endo: Terrorist orgs. vs peasantry, 1980-1990 → 6, 7, 8, 9, 10, 11	(P)-Exo: Central government vs terrorist orgs., 1991-2000 → 1, 2, 3, 6 (P)-Endo: Central government vs LTIs, 1996-2001 → 4, 5, 6, 7, 8, 9, 11 (P/E)-Endo: Regional governments vs LTIs, 2002-2013 → 4, 5, 6, 8, 11, 12, 13, 15, 16 (E)-Endo: Among LTIs, 1991-2013 → 9, 14, 17 (P/E)-Endo: LTIs vs fibre producers, 1991-2013 → 6, 9, 10, 11, 15, 16
Structural Change: Geographical (G) Functional (F) Coupled (G/F)	1. Expansion/contraction of haciendas (G) 2. Peasantry acquires basic organizational capabilities (F) 3. Malthusian trap unleashes massive rural-to-urban migrations (G/F) 4. Technological upgrading and value-addition at the top end of AFC (F) 5. Diversification of export destinations (US, UK, France, Italy) (G) 6. Competitive fibre pricing and purchase based on volume (F) 7. Introduction of tui-adult (vol.) and private fibre standards (quality) (F) 8. Fibre production and trade become seasonal activities (Oct-Mar) (F) 9. Partial 1964 Agrarian Reform restricted to insurrectionary areas (G/F)	1. Haciendas/yanaconaje disappear; end of agricultural law of oligarchy (F) 2. Formation of peasant-owned cooperatives (CAP/SAIS) and unions (F) 3. Transfer of land - not capital, tech and knowledge - to CAP/SAIS (F) 4. Bulk of alpaca herd owners excluded from land transfers (G/F) 5. Failed state intervention; trade, not production, key for AFC control (F) 6. Depopulation of alpacas due to illegal poaching (absent state) (G/F) 7. Land decapitalization and production collapse (F) 8. Disruption of AFC production and trade circuits (G/F) 9. Mass rural-to-urban migrations triggered by violence (G/F) 10. Atomization of land and animal herds (G/F) 11. Destruction of social capital - relational nature of AFC affected (F) 12. Closure of non-specialized casas comerciales (F)	1. Reconstruction of AFC production and trade circuits (G/F) 2. Rural land titling - property rights programme (PETT/COFOPRI) (G/F) 3. Expansion of AFC production and trade circuits to central Andes (G) 4. First state agency for SACs sector (CONACS), 1992-2007 (F) 5. Emergence of large and mid-sized fibre producers (F) 6. Active involvement of CSOs for small-scale producers' support (F) 7. Formation of State Collection Centres of fibre (F) 8. Introduction of first public standard (MITINCI) for fibre quality (F) 9. Quality becomes a core concern for LTIs (F) 10. Collusion of LTIs to fix fibre prices; oligopolic-oligopsonic industry (F) 11. Formation of small fibre textile industries in Arequipa (F) 12. Foundation of first Public-Private Partnership (IPAC) in fibre sector (F) 13. Introduction of Peruvian Technical Norm - fibre quality standard (F) 14. Technological upgrading and vertical integration of AFC by LTIs (F) 15. Formation of peasant-run Local Collection Centres (F) 16. Product and process upgrading by a fraction of fibre producers (F) 17. Significant diversification of export destinations (F)
Transitions	Reforma Agraria (1969)	Free-market reforms and domestication of violence (1990)	AFC turns global and quality of supply emphasized (open-ended)
Transformations	AFFC becomes privately governed and functional division is furthered	Geographical and functional disruption of the AFFC	Geographical and functional recomposition of the AFC

Source: Own elaboration

Although always a subjective process, careful codification of information becomes a vital step for the application of the Embedded Framework due to the amount and complexity of information contained in the historical narrative. The information contained in Tables 3 and 4 is summarized through descriptive statistics in Table 5 to construct the four theoretical propositions of this paper. Table 5 is composed of nine columns and three main rows. The first column corresponds to the Analytical Focus of the Embedded Framework, which, as shown in Subsection 2.3.1., is jointly composed by competition and structural change. The three rows of the table arrange political, economic and mixed forms of competition. For instance, the first row accounts for political forms competition and is further disaggregated into three sub-rows depending on the forms of structural change they generate, whether geographical ( $P \rightarrow G$ ), functional ( $P \rightarrow F$ ) or coupled ( $P \rightarrow G/F$ ). The same operational procedure is followed in the second and third rows which disaggregate economic and mixed forms of competition and their respective forms of structural change.

Numerical data contained in Table 5 is obtained from codified information in Tables 3 and 4. Using the period 1930-1968 – fifth column in Table 5 – as an example we observe in its first major row, one political form of competition leading to geographical change ( $P \rightarrow G$ ), another one leading to functional change ( $P \rightarrow F$ ) and three leading to coupled structural change ( $P \rightarrow G/F$ ). In the second major row we observe one economic form of competition leading to geographical change ( $E \rightarrow G$ ) and four leading to functional change ( $E \rightarrow F$ ). Finally, in the third major row one mixed form of competition generates geographical change ( $P/E \rightarrow G$ ) and one leads to coupled change ( $P/E \rightarrow G/F$ ). This information is obtained after codification of the historical narrative. We now turn back to the fifth row of the first column in Table 4 and observe four competitive processes during the period used as example: one Economic-Endogenous – (E)-Endo –, one Mixed-Endogenous – (P/E)-Endo – and two Political-Endogenous processes – (P)-Endo – which lead to different forms of structural change codified in the sixth row of the same table. Taking the first major row of political competition in Table 5, information is obtained from the two Political-Endogenous competitive processes contained in Table 4.

Table 5: Frequencies of competition for rents and structural change processes per form and period

Analytical Focus	1532-1776	1777-1839	1840-1929	1930-1968	1969-1989	1990-2011	Total	Total (%)
<b>Political</b>								
P → G	6	1		1		1	9	8.33
P → F	12	3		1	13	8	37	34.26
P → G/F		3		3	11	2	19	17.59
							<b>65</b>	<b>60.19</b>
<b>Economic</b>								
E → G				1			1	0.93
E → F				4		3	7	6.48
E → G/F							0	0.00
							<b>8</b>	<b>7.41</b>
<b>Mixed</b>								
P/E → G		1	7	1			9	8.33
P/E → F		1	7			15	23	21.30
P/E → G/F		1	1	1			3	2.78
							<b>35</b>	<b>32.41</b>

Source: Own elaboration



The first Political-Endogenous competitive process - peasants vs haciendas, 1930s-1968 - leads to structural changes 1, 2, 3 and 9 where; structural change 1 is geographical, therefore fits into the (P→G) sub-row of Table 5; structural change 2 is functional so it fits into the (P→F) sub-row, and; structural changes 3 and 9 are coupled, therefore they add to the (P→G/F) row. However, the second Political-Endogenous competitive process also leads to structural change 9, thus adds to the two coupled structural changes (P→G/F) stemming from the first Political-Endogenous competitive process considered for the period 1930-1968. Procedures for data-building in Table 5 are meticulously followed for all competitive process and structural changes contained in Tables 3 and 4.

Lastly, columns eight and nine account for total competitive processes during the 1532-2011 period. For instance, in column eight, a sub-total of 65 political forms of competition, eight economic forms of competition and 35 mixed forms of competition provide a total of 108 competitive processes leading to structural change during the historical transformation processes of the fibre chain. The ninth column expresses these sub-totals as percentages. After explaining how figures have been obtained and summarized in Table 5 I now proceed to elaborate the paper's four theoretical propositions.

## 2.6. Theoretical propositions

The traditional GVC analytical approach to governance as market coordination has been replaced in this paper by political and economic competition for rents and subsequent structural change. This approach is based on the lack of formal market institutions and political systems capable of enforcing them which are found in many LAO-embedded commodity chains around the world. In the case of the fibre chain Table 5 shows that 60.19% of total competitive processes leading to structural change between 1532 and 2011 have been political, 32.41% mixed and only 7.41% economic. The significance of these figures leads to the first theoretical proposition.

**Proposition 1: Political competition is more frequent than market competition for rents in LAO-embedded commodity chains**

If market coordination has been the primary analytical concern of GVC scholars, shifting attention to political (and mixed) competition for rents in LAO-embedded commodity chains can offer empirically richer and more theoretically robust analytical insights.

Chains are not isolated but embedded in nation-states. Peru, like many other developing countries, presents different LAOs within its territory ranging from Fragile and informal in rural areas to Mature and formal in urban ones. Even doorstep conditions can be currently identified in larger cities such as Arequipa while spirals of violence unfold simultaneously in the rural hinterland characterized by Fragile to Basic orders. In the absence of the rule of law, where legitimate political authority (the state) is nominal, dominant coalitions at sub-national levels exercise coercion or violence to advance their interests. Since the old colonial period, domination has replaced negotiation in the highlands where enduring captive-relational modes of governance (e.g. among small-scale producers and *alcanzadores*) neglect upgrading opportunities for bottom-end actors. This argument leads to the second theoretical proposition.

**Proposition 2:** GVC captive-relational modes of governance are prevalent in Basic to Fragile LAO-embedded chains.

This proposition relates institutional conditions in LAO political systems with market-oriented GVC interactions. Market governance modes as typified by Gereffi et al (2005) are predominant in OAO-embedded chains meaning that well-functioning economic systems operate in western liberal democracies. Informed by the Embedded Framework a similar theoretical parallel can be made for LAO-embedded chains which by progressing towards maturity promote spot price market-based transactions. Table 6 shows that political competition for rents was dominant during 1532-1776 (100%), 1777-1839 (70%) and 1969-1989 (100%) which coincide with regressions of the Viceroyal/Peruvian LAOs from Basic to Fragile orders. Among the historical events in support of this observation are competitive political processes such as indigenous revolutions during the 1700s, 1780-1782 Tupac Amaru II Revolution, 1810-1824 Battles of Independence, heavy state interventionism during the military government between 1968 and 1980 and widespread terrorism between 1980 and 1992. During these periods the market price mechanism was relegated or abolished by dominant coalitions ranging from *hacendados-corregidores* to Shining Path terrorists.

Table 6: Frequency and share of competitive processes per form per period

Competition Form	1532-1776	1777-1839	1840-1929	1930-1968	1969-1989	1990-2011	Total
Political	18 (100%)	7 (70%)	0	5 (41.66%)	24 (100%)	11 (37.93%)	65
Economic	0	0	0	5 (41.66%)	0	3 (16.66%)	8
Mixed	0	3 (30%)	15 (100%)	2 (16.66%)	0	15 (51.72%)	35
<b>Total</b>	<b>18 (100%)</b>	<b>10 (100%)</b>	<b>15 (100%)</b>	<b>12 (100%)</b>	<b>24 (100%)</b>	<b>29 (100%)</b>	<b>108</b>

Source: Own elaboration

Frequency of economic/market competition has been marginal in the AFC at just 7.41% during the entire period under study (see Table 5). Furthermore, when looking at Table 6, economic competition's highest historical frequency and share were achieved during 1930-1968 (42%) and restricted to the urban-based and internationally integrated LTIs – former *casas comerciales* - in Arequipa. Increased economic competition is also associated to periods of political stability found in Basic to Mature LAOs, particularly during 1930-1968 and 1990-2011. Mixed competition is more frequent during transitional periods towards LAO maturity, as found during the 1840-1929 (e.g. guano boom and *Republica Aristocratica*) and 1990-2011 (e.g. national pacification and liberalization of markets) where Peru transitioned from Fragile to Basic LAOs in rural areas allowing the formation of semi-formal or proto-markets in the Andean highlands (e.g. contractual arrangements between LTIs and large-scale collective producers). In some large urban areas such as Lima and Arequipa, progression has also been observed from Basic to Mature LAOs.

Aggregate proportion of competition forms per period is shown in Table 7. The 1532-1839 period will be used to illustrate how figures are obtained. As Table 6 shows, a total of 18 competitive processes are found between 1532 and 1776. However, the third column of Table 7 considers competitive processes from 1532 to 1839. Therefore, the 10 competitive processes between 1777 and 1839 are added to the 18 competitive processes between 1532 and 1776, making a total of 28 competitive processes. From this total, political forms of competition add to 25 (18 from 1532-1776 plus seven from 1777-1839), economic forms to zero and mixed forms to three (all from 1777-1839). Therefore, political competition for the 1532-1839 period is  $25/28 = 89.29\%$  and  $10.71\%$  ( $3/28$ ) for mixed forms. The rationale for period aggregation is underpinned by path-dependency. Interestingly, political competition tends to decrease over time from 100% in 1532-1776 to 60.19% for 1532-2011. These preliminary findings inform our third proposition.

Table 7: Aggregate proportion of competition forms per period

	1532-1776	1532-1839	1532-1929	1532-1968	1532-1989	1532-2013
Political (P)	100.00	89.29	58.14	54.55	68.35	60.19
Economic (E)				9.09	6.33	7.41
Mixed (P/E)		10.71	41.86	36.36	25.32	32.41
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: Own elaboration

Proposition 3: Political competition decreases as LAO-embedded chains progress from Fragile to Basic to Mature orders.

Interruption of this trend during 1532-1989 – 68.35% - is explained by the politically charged and unstable period of 1968-1989 (see Tables 4, 5 and 6) where fully-fledged state interventionism was followed by a decade of terrorist violence. National production and trade across all sectors and levels collapsed and the failure of the 1969 Reforma Agraria increased resentment and social unrest in the highlands, sentiments that were capitalized by the Shining Path. Despite these events a decreasing trend in political competition as LAOs transit towards maturity is observed alongside an increased share of mixed competition. As a preliminary explanation, competition forms could be associated to LAO varying degrees of formality-informality with political competition related to informal settings and mixed competition to semi-formal ones.

In terms of structural change for the entire period under study, functional forms account for 62% of the total followed by coupled structural change with 20% and geographical forms with 18%. These figures are obtained from Table 5 by adding  $P \rightarrow F$  (37) +  $E \rightarrow F$  (7) +  $PE \rightarrow F$  (23) and dividing the resulting figure (67) by the total number of competitive processes of the entire period under study (108). The same procedure applies for coupled ( $P \rightarrow G/F$  +  $E \rightarrow G/F$  +  $PE \rightarrow G/F$ ) and geographical ( $P \rightarrow G$  +  $E \rightarrow G$  +  $PE \rightarrow G$ ) change figures of 20% and 18% respectively. Functional change includes division and specialization of labour such as the emergence of middlemen networks in the XIX century, introduction of standards - from volume based tuis-adulto to quality-based PTN standards - and technological upgrading of casas comerciales into LTIs. The chain's transformation process shows that while dominant coalitions are always replaced by more powerful ones (as shown in the third rows of Tables 3 and 4), small-scale producers - the largest group of actors in the AFC - continue living in XVIII century conditions. After applying the same simple arithmetic procedures for results presented in Table 7 we obtain aggregate proportion of structural change forms per period as shown in Table 8.

Table 8: Aggregate proportion of structural change forms per period

	1532-1776	1532-1839	1532-1929	1532-1968	1532-1989	1532-2013
<b>Geographic (G)</b>	33.33	28.57	34.88	32.73	22.78	17.59
<b>Functional (F)</b>	66.67	57.14	53.49	50.91	51.9	62.04
<b>Coupled (G/F)</b>		14.29	11.63	16.36	25.32	20.37
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Source: Own elaboration

Data from Table 8 is not conclusive enough to support the development of a theoretical proposition. However, these figures suggest that geographical change in the AFC tends to decrease as the Peruvian LAO transits towards maturity. Geographical change in the AFC has generally been the outcome of exogenous competitive processes at macro and meso levels. For instance, distribution of alpacas in the Andean highlands is the artificial outcome of killings and displacements of indios and native herds by Spanish conquistadores and European animal species since the 1530s. Furthermore, discovery of silver in Potosi articulated the southern Andes with Lima through a production and trade axis where petty trade of fibre goods was carried within indigenous subsistence economies. After independence from Spain, once British traders established in Arequipa and consolidated its economic primacy in southern Peru, domestic fibre trade shifted from south-north to east-west. The construction of the Southern Railway between 1869 and 1906 provided a visible geographical template to the AFC stretching from Mollendo to Cuzco. In this regard, although the AFC circuits have recently expanded to central Peru, most of its current geographical structure has already been established 150 years ago.

However, if geographical change tends to decrease, it could be inferred that functional change follows the opposite direction when transitioning from Basic to Mature LAOs. In the case of the AFC - with the exception of the 1969-1989 period - the LAO in which it is embedded has transited towards this direction since 1990. However, functional change in the AFC can be properly assessed only after 1840 when fibre production in the highlands was internationally articulated to British textile mills. Functional change has been predominant, especially during the 1890-1929 (e.g. sophistication of middlemen networks), 1930-1968 (e.g. technological upgrading of casas comerciales) and 1990-2011 (e.g. Local Collection Centres) as exposed by the historical narrative codified in Tables 3 and 4.

Information provided by Tables 5 and 8 also offer the possibility of exploring specific forms of structural change generated by specific competitive forms through total share of geographical ( $P \rightarrow G + E \rightarrow G + P/E \rightarrow G$ ), functional ( $P \rightarrow F + E \rightarrow F + P/E \rightarrow F$ ) and coupled ( $P \rightarrow G/F + E \rightarrow G/F + P/E \rightarrow G/F$ ) forms of structural change. Results for the entire period under study – 1532 to 2011 – are shown in Table 9 and provide preliminary evidence for the fourth and last theoretical proposition.

Table 9: Proportion of structural change forms by competition forms, 1532-2011

	Geographical (G)	Functional (F)	Coupled (G/F)	Total
<b>Political (P)</b>	8.33	34.26	17.59	60.19
<b>Economic (E)</b>	0.93	6.48		7.41
<b>Mixed (P/E)</b>	8.33	21.30	2.78	32.41
<b>Total</b>	17.59	62.04	20.37	100.00

Source: Own elaboration

Proposition 4: Political competition has greater impact on functional change than economic competition in LAO-embedded chains

In Basic to Fragile LAO-embedded chains where the rule of law is weak or absent and informality prevails, economic competition is purposefully limited by powerful elites eager to control rents. Functional changes in the AFC before 1930 were all conditioned by extractive economic institutions – from *encomiendas* to *habilitacion* – and enforced through coercion or violence by dominant coalitions. Uneven distribution of factors of production resulting from these institutional arrangements led to fragmented supply of fibre and concentrated demand in Arequipa, a structural pattern shared by other LAO-embedded commodity chains worldwide. This empirically supported analysis highlights the limitations of economics-centred perspectives on GVC research.

Political domination perpetuating uneven distribution of rents in LAO-embedded chains can only end through negotiation which offers no incentives for dominant coalitions beyond altruism. Unless political participation is widened and all chain actors are held equally accountable under the rule of law, no formal market-oriented interventions – whether production-oriented upgrading policies or promotion of spot-price transactions through standards – will reverse vertical chain structures. Following this argument, it can be inferred that economic competition has greater impact on functional change as LAO-embedded chains progress towards maturity but summarized AFC figures in tables 8 and 9 are not significant enough to support this proposition. However, functional change

generated by market competition leads to specialization in contrast to mere division of labour as observed politically-driven processes of change (e.g. yanaconas and mitayos in colonial Peru).

Finally, in terms of types of competitive processes leading to structural change in the AFC, Table 10a shows that nearly 40% of these processes have been exogenous while 60% have been endogenous. When considering their shares per period as shown in Table 10b, it can be observed that endogenous change tends to increase over time while exogenous change tends to decrease. Between 1532 and 1776, all competitive types were exogenous given that no recognizable chain structure could be identified during this period. Fibre production and trade were confined to indigenous subsistence economies and wool obrajes dominated the Vice-royal textile industry. However, the emergence of the AFC during the late 1830s brought the first endogenously-led structural with the establishment of the first foreign *casas comerciales* in Arequipa. From 1840 onwards, endogenous competition has prevailed as quick review of the fifth rows in Tables 3 and 4 will confirm. Yet, Table 10b suggests that exogenous competition tends to increase during periods dominated by political forms of competition - especially 1840-1929 and 1969-1989 - but once again, results of this exploratory study are not significant enough to sustain a theoretical proposition.

Table 10a: Frequency of exogenous and endogenous competitive events per period

<u>Competition Type</u>	<u>1532-1776</u>	<u>1777-1839</u>	<u>1840-1929</u>	<u>1930-1968</u>	<u>1969-1989</u>	<u>1990-2011</u>	<u>Total</u>	<u>Total (%)</u>
Exogenous	18	7	5	1	7	4	42	38.89
Endogenous		3	10	11	17	25	66	61.11
	18	10	15	12	24	29	108	100.00

Source: Own elaboration

Table 10b: Share of exogenous and endogenous competitive events per period

<u>Competition Type</u>	<u>1532-1776</u>	<u>1777-1839</u>	<u>1840-1929</u>	<u>1930-1968</u>	<u>1969-1989</u>	<u>1990-2011</u>
Exogenous	100.00	70.00	33.33	8.33	29.17	13.79
Endogenous	0	30.00	66.67	91.67	70.83	86.21

Source: Own elaboration

Before arriving to the paper's conclusions, important methodological-operational limitations of the Embedded Framework must be acknowledged: (i) Meticulous scrutiny of historiographical sources does not eliminate subjectivity from interpretive research; (ii) While the historical narrative elucidates political and economic competition it overlooks other forms (e.g. technological) which exceed the scope and purpose of this

exploratory investigation, and; (iii) Codified information has been summarized through basic descriptive statistics where equal weight has been assigned to all individual competitive processes in terms of their broader political, economic and social impact. Development of more sophisticated quantitative models is recommended for refinement of the framework and further validation of the four theoretical propositions. These models can also lead to novel theoretical propositions relating exogenous/endogenous types of competition with specific forms of structural change.

## 2.7. Conclusions

This paper has explored the impact of competition for rents on structural change in the AFC by moving away from the traditional GVC analytical focus of market coordination. Competition for rents has been approached not only as an economic but also as a political process. The rationale behind this analytical shift is found on the informal and highly fragmented nature of commodity chains in the developing world where non-market interactions are of fundamental importance for production and exchange activities. Moreover, given that change implies a temporal dimension, a historical perspective has been adopted to provide richer analytical insights on the origins, nature and direction of structural change – geographical and functional - stemming from competition for rents in the AFC. Analysis of the chain's historical transformation process since 1532 to present has also helped to better contextualize and inform its four theoretical propositions.

Combination of the GVC and LAO frameworks has resulted in the Embedded Framework which combines the structural strengths of GVCs with the institutional richness of LAO. Provision of a carefully crafted historical narrative on the institutional, organizational and structural developments of the AFC has exposed the difficult co-existence between formal/semi-formal capitalist and informal pre-capitalist worlds. This difficult co-existence has been characterized by frequent struggles among asymmetrically powerful actors to control and distribute rents. Moreover, information on the competitive processes and structural transformations of the AFC has also provided a constellation of political and economic actors and institutions, power dynamics and rent sources shaping these dynamics. This information has been tabulated, codified and leveraged into the Embedded Framework and summarized through descriptive statistics to inform the four theoretical propositions.



Preliminary findings from interpretation of codified information indicate the prevalence of political over economic forms of competition on structural change in the AFC. This informs the first theoretical proposition which calls for shifting attention from market variables and interactions to politically grounded studies on power asymmetries in commodity chains. The second theoretical proposition states that captive-relational governance modes of GVCs are prevalent in Basic to Fragile LAO-embedded chains. Here, compatibility is observed between GVC governance modes of a commodity chain and the overall governance of the nation-state's LAO in which it is embedded. This is a helpful contribution insofar it establishes a dual or coupled (embedded) chain governance system, one endogenous and one external to the chain. This idea offers a fruitful path for future investigations on embedded GVC governance. In the third theoretical proposition, political competition decreases as nation-states progress towards a more participatory economic system. Lastly, proposition four states that political competition has greater impact on functional change than economic competition as nation-states regress from Basic to Fragile orders. Although figures obtained from codified information in the Embedded Framework are not conclusive, it can be inferred that functional changes tend to increase as LAO-embedded chains progress from Basic to Mature orders while geographical changes tend to follow the opposite direction. Finally, the assumption that labour specialization occurs alongside markets sanctioned by the rule of law is supported by preliminary findings in the AFC.

Through its four theoretical propositions the AFC case study shows that analysis of power asymmetries devoid from politics is an incomplete undertaking of current GVC research. From an operational perspective, application of the Embedded Framework exposes the limitations of the GVC framework when dealing with non-market variables, in particular economic interactions mediated by informal institutions. In this regard, the Embedded Framework is a more versatile, flexible and comprehensive framework best suited to the political and socio-cultural complexities and particularities of commodity chains. Regarding the Embedded Framework's limitations, two are temporal and one is permanent. Through further comparative chain studies, other forms of competition (e.g. technological) can be assessed in terms of their effects on structural change and chain governance. The second temporal limitation can be remedied through mathematical sophistication of the rudimentary Embedded Framework elaborated in this paper. What can never be remedied is the subjective nature of interpretive research.

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## CHAPTER 3 – ORGANIZATIONAL UPGRADING IN THE PERUVIAN ALPACA FIBRE VALUE CHAIN

### Abstract

This paper introduces the concept of organizational upgrading stemming from standardization in the Peruvian alpaca fibre chain. Empirical evidence shows that adoption of fibre quality standards by small-scale producers leads to supply concentration in the form of Local Collection Centres. These formal organizations increase organizational capabilities and bargaining power of fragmented suppliers enabling them to bypass middlemen networks and reduce transaction costs. Further vertical integration with Small Textile Industries is observed offering opportunities for rent capture in international markets. Possibilities for better terms of chain engagement are not clear under firm and production-oriented forms of upgrading in commodity chains. Yet, dependency on public credit and mismanagement by peasant cooperatives running Local Collection Centres may lead to regression from organized supply concentration to captivity by dominant textile firms rendering organizational upgrading unsustainable.

**Key Words:** Global Value Chains, organizational upgrading, standardization, alpaca fibre, development, Peru

### 3.1 Introduction

In this paper I assess how standardization fosters organizational upgrading among small-scale producers in the Peruvian alpaca fibre chain. In contrast to firm-centred and production-oriented upgrading forms – product, process, functional and inter-sectoral – (Kaplinsky and Morris, 2001; Humphrey and Schmitz, 2002) discussed in Global Value Chain (GVC) research (Gereffi et al, 2005) organizational upgrading refers to acquisition of organizational capabilities and bargaining power by functionally and geographically fragmented commodity suppliers. As I explore organizational upgrading under the lens of standardization, structural shifts in the fibre chain before and after introduction of quality standards in 2004 are mapped and explained using the GVC framework to explicit findings. The impact of organizational upgrading is assessed through operational analysis of Local Collection Centres (LCCs) – the institutional expression of

organizational upgrading – and peasants cooperatives responsible for their management in terms of opportunities (and limitations) for chain engagement and capture of rents.

Alpaca fibre is a globally traded textile commodity. It accounts for 10% of global trade of fine animal fibres while mohair, angora and cashmere account for 56%, 21% and 12% respectively (IAA, 2000). Yet, the combined share of fine animal fibres is just 1.5% of global output of animal fibres with wool accounting for the remaining 98.5% (Natural Fibres, 2009). Increased international competition from natural/synthetic fibres alongside poor quality of alpaca fibre led to elaboration and introduction of the Peruvian Technical Norms (PTN) in 2004. These product and process standards are aimed at improving quality of raw fibre supply. Standard diffusion and adoption efforts have been displayed by chain facilitators with particular attention on small-scale producers who collectively supply the largest volumes of fibre in the country. The emergence of LCCs managed by inter-regional peasant cooperatives is one of the most important outcomes of on-going standardization and provides the case for introducing the concept of organizational upgrading.

Developmental emphasis of organizational upgrading is placed on commodity chains in the developing world as globalization widens unequal distribution of rents and opportunities for chain engagement. Across sectors and countries many commodity chains are characterized by fragmented supply and concentrated demand articulated by middlemen networks (Bacon, 2005; Bingen, 2006; Minten, et al, 2012; Tran et al, 2013). Fragmented suppliers are represented by thousands of vulnerable individuals/families living below the poverty line. Their situation is perpetuated by uneven terms of chain engagement and forced compliance of transactional conditions imposed by actors located upwards in the fibre chain. Informality (e.g. absence of rule of law) exacerbates these conditions. In this regard, context-specific power relations configure different modes of chain governance which in turn determine uneven upgrading opportunities for chain actors (Gibbon, 2001; Gibbon et al; 2008; Neilson, 2013). Successful product and process upgrading is also conditioned by costs associated to practical application of upgrading capabilities (e.g. inputs, technology and infrastructure among others) which bottom-end commodity suppliers cannot afford. Within these restrictive socio-economic and political contexts, subsistence replaces the rationale of firm competitiveness underpinning upgrading in GVC research (Bair, 2005).

Based on these observations, I expose the benefits brought by organizational upgrading in the fibre chain and argue that these cannot be achieved through production-oriented and firm-centred GVC forms of upgrading. My findings show that LCCs help small-scale producers increase bargaining power through supply concentration and capture higher rents by avoiding transaction costs from middlemen. These benefits can hardly be obtained through conventional upgrading forms aimed at improving production capabilities but not terms of exchange. However, threats posed to self-sustainable organizational upgrading such as dependency on public credit and corrupt LCC management by peasant cooperatives are also discussed to assess potential limitations.

Following this introduction I succinctly review GVC literature underlying at the crossroads of governance, upgrading and standards. I then elaborate on research methods applied for primary and secondary data collection which inform this investigation. In the fourth section, background information on the alpaca fibre sector is presented to introduce its main actors and institutions. The technical characteristics of the PTN are then outlined and a descriptive and explanatory account of the standardization process follows. Discussion covers the impact of organizational upgrading on the fibre chain and the conceptual particularities that separate it from conventional GVC upgrading forms. The last section concludes.

### 3.2. Theoretical Review

This paper adopts a GVC framework (Gereffi et al, 2005; Humphrey and Schmitz, 2002) to explain organizational upgrading in the Peruvian alpaca fibre chain. The framework focuses on the passage and value addition sequences of a product from conception (or extraction) to production to final consumption. Coordination of these processes among asymmetrically powerful actors is the main analytical concern of chain governance. Producer and buyer-driven governance types were initially introduced by Gereffi (1994) to emphasize dominance of international lead firms on suppliers. However, limitations of this dual typology were exposed by Humphrey and Schmitz, (2001; 2002) who argued that insufficient attention was paid to upward-downward linkages among chain actors. Furthermore, as Gibbon et al (2008) note most chains fit into the buyer-driven type making the concept of producer-driven chains redundant. The turning point for rethinking governance as coordination rather than governance as driving (by lead firms) came with Sturgeon (2002) who highlighted the relationships between modularity, networks and suppliers in a study of the US electronics sector.

In attention to these conceptual developments, Gereffi et al (2005) proposed five governance modes of high analytical merit: (i) Market, where straightforward economic transactions are carried through spot-price; (ii) Modular, where competent suppliers follow customers' specifications (standards); (iii) Relational, where complex interactions between suppliers and buyers lead to mutual dependence based on reputational ties; (iv) Captive, where small suppliers usually accept unfavourable transactional conditions due to significant power asymmetries with buyers, and; (v) Hierarchical, where governance is characterized by subordinate vertical integration systems. Governance modes differ across sectors and countries providing different upgrading opportunities for governing and governed actors (Gibbon, 2001; Humphrey and Schmitz, 2000 and 2001).

The concept of upgrading was initially elaborated by chain scholars as the capacity of firms to move towards technology and capital-intensive industries rendering increasing returns (Gereffi, 1999). From this approach, Kaplinsky and Morris (2001) proposed four upgrading forms later refined by Humphrey and Schmitz (2002): (i) Product upgrading, or the capacity of firms to make new and/or better products of higher quality; (ii) Process upgrading, or the capacity of firms to implement more efficient, cost-effective and speedier production processes; (iii) Functional upgrading, or acquisition of new skills/knowledge (e.g. marketing, design) to expand a firm's productive base, and; (iv) Inter-sectoral (chain) upgrading, or the application of existing skills/knowledge in different productive sectors. More recent studies are developing the concept of social upgrading (Pipkin, 2011; Puppim de Oliveira and Jordão de Oliveira, 2014; Rossi, 2013) to assess from different socio-economic perspectives the welfare conditions of disadvantaged chain actors as these engage in highly uneven global production and trade systems. The challenge faced by social upgrading researchers rests on the development of more precise definitions and measurement tools to make the concept policy relevant.

Humphrey and Schmitz (2001) argue that chain coordination can also be achieved through enforcement of product and process standards on suppliers. In quasi-hierarchical chains (Humphrey and Schmitz, 2002) like the alpaca fibre chain, dominant lead firms have the capacity to enforce standards on their supply base through superior market power and technical competencies<sup>32</sup>. Suppliers' control not dependent on

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<sup>32</sup> Kaplinsky (2000) elaborated three conceptual modes linking governance to standards: (i) Legislative governance, in which lead firms set product and process standards for suppliers; (ii) Judicial governance, where performance of suppliers is monitored for standards' compliance, and; (iii) Executive governance, where supply chain managers provide support to suppliers for standards' compliance.

geographical proximity configures what Ponte and Gibbon (2005) call hands-off governance by dominant firms where upgrading possibilities for the former are determined by superior market power and competencies of the latter. Moreover, costs of meeting standards requirements and limited chain coordination can also hinder upgrading capabilities (Kaplinsky, 2010). However, standards compliance offers learning opportunities and acquisition of capabilities not only for firms but also for individuals supplying commodities. These capabilities need not and cannot be exclusively related to better, bigger and faster production if power asymmetries among suppliers and buyers are not reduced.

### 3.3. Research methods

For the purpose of primary data collection, fieldwork was carried in Peru between August and October 2012. A total of 22 semi-structured interviews were conducted in the regions of Arequipa, Lima and Puno with public, private and civil society actors covering all functional stages of the fibre chain from production to industrial transformation. Arequipa concentrates over 90% of national demand as fibre textile industries are based there while Lima is home to central government agencies responsible for agro-industrial policy and regulation. The Puno region hosts over 50% of the world's alpaca population and has the largest concentration of producers in the country while Juliaca, the region's largest commercial city, concentrates almost 90% of raw fibre collected by middlemen nationwide.

Actors were selected following purposive sampling but three respondents were identified through snow-ball technique. The same questionnaire was applied to all interviewees and questions were aimed at gaining an understanding of the PTN from each actor's perspective, identifying competing and/or collaborative roles in the standardization process, exploring operational and organizational strategies and mechanisms for PTN diffusion, adoption and enforcement, defining target populations and rates of standards adoption, identifying standardization facilitators and/or disablers and understanding actors' perceptions on the impact of standards for their organizations and the industry in general. Interviews lasted an average of 60 minutes ranging from 15 to 120 minutes.

Written notes were taken during conversational-style sessions and interpretive follow-up transcriptions were done within 72 hours after completion of each interview. In addition, the author attended a full-day quarterly meeting of the Peruvian Technical Norm Committee in Arequipa and a three-hour Regional Roundtable of fibre producers in Puno, both by invitation. Recording was only permitted in the latter but extensive notes were taken at both meetings. These sessions allowed me to obtain complementary information and to contrast individual responses. On the other hand, interviews with middlemen proved extremely difficult given their profound mistrust on “foreigners”. However, after mediation from a business agent it was possible to obtain formal consent from a mid-sized middleman for a 15-minute interview in Juliaca.

In order to complement collected primary data, I visited seven small production units and LCCs in the provinces of Ayaviri and Lampa in Puno. Through non-participant observation and informal engagement with small-scale producers notes were taken on herd management practices and raw fibre production processes. Applying the same methodological approach I observed organizational arrangements and market interactions between organized producers and buyers. Additional visits were made to the industrial plants of Michell and Incatops in Arequipa to learn about collection, classification and industrial processing of fibre.

In the case of secondary sources, data and information were obtained from policy reports, bulletins, statistics and technical studies published by multilateral organizations, central and regional government agencies and Non-Governmental Organization (NGOs). Quantitative data on fibre production and trade exists since the 1970s but figures on basic indicators such as raw fibre outputs, number of producers and prices and volumes traded vary widely among sources. In this regard, available data is scarce and highly unreliable (Bonavia, 2009). Unless secondary sources are quoted, estimates from primary sources provide quantitative information for the period covered by this study.

#### 3.4. Alpaca fibre production in Peru: actors, institutions and interactions

Found at altitudes ranging from 3,000 to 5,200 masl, alpacas (Lama pacos) - one of four species of South American Camelids (SACs) - have been bred and domesticated in the Andean highlands for over 6000 years (Wheeler, 1995). According to FAO (2005), Peru hosts 85% of the world’s population followed by Bolivia with 10% but sizeable herds are



also found in Chile, the United States and Australia. Results from the IV Peruvian National Agricultural Census show that the country has 3,685,000 alpacas with more than 80% distributed in the southern regions of Puno, Cuzco, Arequipa and Apurimac (MINAG, 2012) (see Figure 5). Peru is the world's largest producer of fibre with 80% of the total output (FAO, 2005). In 2010 the country produced 3,816 metric tons of fibre and exported US\$109 million in intermediate and final goods to 42 countries (MINAG, 2012).

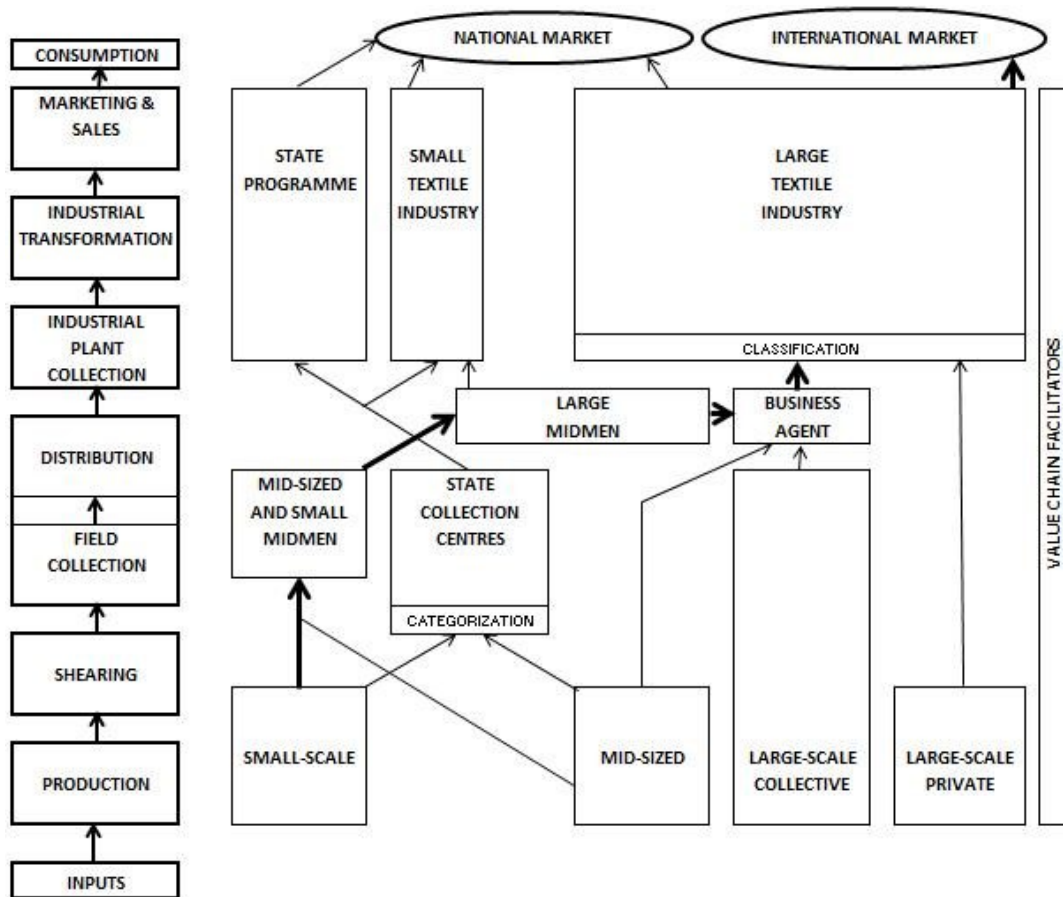
Figure 5: Distribution of alpacas in Peru



Source: Own elaboration

A simplified segmented structure of the fibre chain and its actors (before PTN standardization) as well as nine functional stages of fibre passage are shown in Figure 6. Functional stages correspond to: (i) inputs, including pastures, water and environmental conditions; (ii) production by small to large-scale producers conditioned by inputs and animal nutrition, health and reproduction management; (iii) shearing, whether manual or electro-mechanic; (iv) field collection of fibre by middlemen and business agents; (v) distribution of raw fibre to textile plants; (vi) collection at industrial plant and fibre classification; (vii) industrial transformation to intermediate and/or final goods; (viii) marketing and sales, and; (ix) consumption of fibre goods in international and national markets. This paper pays particular attention to chain actors, institutions and their interactions from inputs to industrial plant collection stages. With the exception of the last stage - end consumption of fibre goods - all functional stages are territorially embedded in Peru.

Figure 6: Structural configuration and interactions among chain actors before PTN standardization



Source: Own elaboration

Fibre production and trade are seasonal activities concentrated between October and March-April. This rainy period ensures better pastures and higher temperatures for newborns. Around 160,000 small-scale producers scattered in the Andean highlands constitute the bottom-end of the chain which incorporates an informal network of 15,000 middlemen and 3,000 individuals working for small and Large Textile Industries (LTIs) in Arequipa (de los Rios, 2010). Central and regional government agencies involved in agricultural production, industry and trade as well as NGOs act as chain facilitators, particularly for small and mid-sized producers through provision of technical assistance and training. These facilitators are not directly involved in fibre production and trade and do not capture rents generated by these activities. Chain facilitators focus their operations from inputs to field collection stages to improve chain coordination and provide upgrading opportunities for bottom-end actors.

Small-scale producers supply approximately 85% of national fibre output while mid-sized and large-scale producers provide the remaining 10% and 5% respectively (Brenes et al, 2001). Small-scale producers are the largest and most vulnerable group engaged in the fibre chain; geographical isolation, socio-economic fragmentation and limited access to markets (e.g. poor transportation and telecommunications infrastructure) have resulted in significant power asymmetries with actors located upwards. They own almost 90% of alpacas but individual herds do not exceed 200 animals (Brenes et al, 2001; de los Rios, 2010; Fairfield, 2006)<sup>33</sup>. Located at altitudes above 4,000 masl and engaged in subsistence economies, annual family incomes range from US\$345 to US\$800 (de los Rios, 2010) and participation in alternative agricultural activities is limited due to poor soil conditions.

Modern animal health, nutrition and reproduction management and technologies are inaccessible due to prohibitive costs. Environmental conditions also have a negative impact on productivity leading to annual outputs of 1.6-2.5kg per animal compared to 5.4kg of those from large-scale private farms (Brenes et al, 2001). During the rainy season between October and March the highlands supply quality pastures in the wetlands where animals graze freely until the green coverage is exhausted. However, unlike their larger peers, small-scale producers cannot supplement herds with feedstuff during the dry and cold season leading to malnutrition rates as high as 90% (Moya and Torres, 2008). Prevalence of diseases such as sarcocystosis and scabies is high and mortality

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<sup>33</sup> Peasant herds usually range from 30 to 120 animals.

rates by enterotoxaemia regularly exceed 50% in new-borns (FAO, 2005)<sup>34</sup>. Herds are mixed in terms of species, breed, age, sex and colour. Free mating and crossbreeding between llamas and alpacas is frequent producing sterile offspring with thicker fibre known as huarizos. Hybridization is estimated at 70% in herds owned by small-scale producers and significantly lowers genetic quality. In this regard, according to Bustinza (2001) more than 50% of raw fibre produced in the country has widths over 27 microns ( $\mu$ ) but international buyers rarely purchase qualities above 25.5 $\mu$ <sup>35</sup>.

Mid-sized fibre producers own herds of 200-799 alpacas and are organized as private or collectivist units, the latter organized by peasant communities. Around 70% of mid-sized producers share the same structural problems faced by small-scale producers while the remaining 30% are privately owned farms which apply modern production techniques. Private mid-sized producers commit their fibre to LTIs - Michell and Incatops - in exchange for funding and technical assistance. Large-scale fibre producers contribute with less than 5% of total national supply but have the financial, managerial and technological means to supply superior quality yields (Brenes et al, 2011). Large private farms correspond to vertically integrated units owned and managed by LTIs. Pacamarca, founded by Incatops in 1992, has 2000 alpacas while Mallkini, founded by Michell in 1995, manages 2500 animals. Large collectivist producers are organized as associative enterprises and were founded as Agrarian Societies of Social Interest (SAIS) after Peru's Agrarian Reform in 1969. Among the most important are Rural Alianza, SAIS Pachacutec and SAIS Tupac Amaru with herds of 40000, 12000 and 5000 alpacas respectively.

Production activities at Pacamarca and Mallkini are planned on a yearly basis. These technology and research-intensive farms provide adequate animal nutrition and healthcare while conducting artificial insemination and in vitro fertilization to improve

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<sup>34</sup> Alpacas are affected by several diseases endemic to fibre production areas. The most significant in economic terms are Enterotoxaemia, Sarcocystosis and Sarna (Huanca and Mamani, 2010). Enterotoxaemia is an acute infectious disease causing diarrhea leading to death through dehydration. Sarcocystosis is the most important endoparasitic disease affecting adult animals with prevalence rates of 70-80% (FAO, 2005). Cysts are formed in muscles and meat is not adequate for human consumption. Sarna or scabies is the most important ectoparasitic disease with prevalence rates of 80% (ibid). It is transmitted through direct contact with infected animals and exacerbated by poor hygiene conditions and malnutrition. Although traditional treatments with herbs and kerosene are effective they also damage fibre quality.

<sup>35</sup> In comparison, angora, cashmere and mohair fibres have widths of 14-16 $\mu$ , 14-19 $\mu$  and 23-38 $\mu$  respectively.

quality of the genetic pool. Through phenotypical selection<sup>36</sup> alpacas are separated by age, sex, breed and colour and fibre width, density and length are determined at in-house laboratories. Controlled mating between January and March is supervised by qualified staff and registries are taken to allow genetic traceability. The process of *saca* or “exit” is also conducted after each production and trade season to discard old and sick animals from herds. *Saca* increases fertility rates, lowers management costs and leads to long-term supply-upgrade by selecting parents that will transmit favourable characteristics to their offspring. According to a representative of Pacamarca these measures have resulted in fibre diameters below 23 $\mu$  for more than 50% of their output.

*Saca* in small-scale production units is conditioned by financial hardship where discarded animals are sold at local fairs or destined for self-consumption. Large collectivist producers are less technology-intensive than large private farms but apply similar management and production techniques including registries, controlled mating, nutritional supplementation and provision of adequate infrastructure and veterinary care. As a result herds are less vulnerable to diseases and malnutrition. Most associative enterprises commit their entire production to Michell and Incatops in exchange of financial and technological support. Moreover, semi-formal contractual arrangements between these actors configure *de facto* vertical integration.

The process of value-addition begins with shearing with a “big” campaign conducted in October and a “small” one in March for younger animals. Large producers apply mechanical shearing where qualified staff separate animals according to breed, age and colour. Individual shearing is conducted in clean and dry skirting tables beginning with white animals to avoid contamination from coloured fibre. Professionally managed herds have *saca* rates of 10% and shear around 60% of their animals per season (Lencinas and Torres, 2010). Mechanical shearing is time-efficient, cuts are cleaner and fleeces<sup>37</sup> more uniform. Raw fibre lengths of 7-10cm meet conditions for industrial processing. Small-scale producers follow seasonal shearing but the process is also conditioned by financial need. Animals are not separated and the process is conducted in rustic environments with poor sanitary conditions. Traditional peasant scissors known as *lapiacos* are used to harvest fibre but knives or broken glass are also common leading to irregular cuts, shorter fibre and injured animals. As a result, alpacas suffer high levels of stress leading

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<sup>36</sup> The phenotype corresponds to the observable characteristics of a species such as morphological structure. The phenotype expresses the interactions between the non-observable genetic code of a species or genotype and the environmental conditions that shape its evolution and development.

<sup>37</sup> A fleece refers to the entire fibre coverage sheared from one alpaca.

to higher abortion rates and fleeces are regularly contaminated with dirt and ectoparasites.

According to Manrique and Grupp (2005) around 3% of small-scale producers' harvest is devoted for self-consumption while the rest is sold to middlemen. Mid-sized private producers and large-scale collective ones usually bypass middlemen by selling larger volumes directly to business agents. Fibre in domestic markets is traded in local currency (Nuevos Soles) per pound or quintales<sup>38</sup> from field to industrial plant collection stages and in US\$/kg from industrial processing onwards. Seasonal output per small-scale producer ranges between 2-5 quintales while mid-sized and large-scale producers commercialize around 10-35 and 250-2000 quintales respectively. Large-scale and private mid-sized producers categorize, pack and label fleeces following instructions from LTIs depending on which firm they commit their fibre to. Michell or Incatops purchase over 85% of domestic fibre supply and export 90% of Peru's alpaca fibre goods. On the other hand, given smaller yields, complex logistics and high costs associated to fibre categorization (e.g. labour, transportation) small-scale producers sell their fibre in irregular bulks.

Until 2004 fibre production and trade in Peru were informally regulated by two types of standards: (i) private industry standards, and; (ii) tui-adulto standard. The first were separately developed by LTIs during the 1950s-1960s in response to higher quality requirements from international customers. These competing and incompatible private standards classify fibre according to width, breed and colour (see Table 11) which are applied internally after fibre is received at industrial plant.

Table 11. Private standards: Incatops and Michell (huacaya breed)

11a. Incatops, fibre class based on diameter

Class	Diameter (microns - $\mu$ )
Alpaca Royal (AR)	Up to 20
Baby Alpaca (BA)	20.1 - 22
Super Fleece (SF)	22.1 - 23.5
Coarse (C)	23.6 - 27
Pelos del Peru/Thick (P)	27.1 - 33

<sup>38</sup> Quintales are a unit of measure used in the Peruvian highlands since Spanish colonization in the XVI century. Each quintal is equivalent to 22-23 full fleeces weighing between 45 and 50kg.

11b. Michell, fibre class based on diameter

Class	Diameter (microns - $\mu$ )
Super Baby Alpaca (BL Super)	Up to 20
Baby Alpaca (BL)	20.1 - 22.5
FS Alpaca (FS)	22.6 - 26.5
Coarse (C)	26.6 plus

Source: Own elaboration

The tui-adulto standard (T-A) is a de facto customary standard informally introduced and enforced by textile industries through middlemen networks since the 1950s. This standard categorizes fibre based on animal's age. Alpacas less than two years old known as tuis usually have thinner fibre although deficient management and environmental conditions tend to diminish this biological advantage. Prices usually 20-30% higher are paid for white tui fibre under this standard. The T-A standard is enforced by middlemen on all small-scale and mid-sized collective producers. Fibre from suri breed which accounts for 15% of the total alpaca population has higher market value than huacaya fibre. In this regard, sustained international demand for white fibre during the last 30 years explains why only 20% of current herds are coloured in contrast to 80% in the past (de los Rios, 2010).

Fibre prices are publicly announced by LTIs between late September and early October, just before the beginning of the big shearing campaign. Although Michell and Incatops state that prices are exclusively determined by international demand, producers and chain facilitators accuse these firms of collusion. Larger volumes sold by associative enterprises allow them to negotiate directly with business agents from LTIs and obtain better prices. On the other hand, small-scale and collective mid-sized producers deal exclusively with middlemen under T-A standard conditions where lower prices vary depending on volumes traded, location of exchange and relational degree between suppliers and buyers.

Given that nearly 90% of fibre is supplied by fragmented suppliers – small-scale and mid-sized collective producers - middlemen play a crucial role in articulating this highly uncoordinated chain. Since their emergence in the 1840s when fibre exports to British markets began middlemen networks have been responsible for articulating fragmented supply in the highlands with concentrated demand in Arequipa. Depending on volumes collected middlemen are classified – from small to large - as alcanzadores, rescatistas

and grandes acopiadores. A top-to-bottom funding system known as *habilitacion* bonds the network where *alcanzadores* are funded by *rescatistas* who in turn are funded by *grandes acopiadores* who in turn are funded by business agents working for the dominant textile industries in Arequipa. With prices fixed each season by Michell and Incatops and commissions tied to volumes traded, middlemen can only capture rents by transferring costs to small-scale producers.

*Alcanzadores* constitute the first and single link between peasants and the rest of the fibre chain. They collect small volumes from several small-scale producers, usually five *quintales* or less per producer per season. Given low stocks of social capital *alcanzadores* must first develop close ties or *compadrazgo* relations with suppliers. Relational trade is hardened through repeated transactions where two exchange mechanisms operate: (i) barter of fibre for basic goods such as food, clothing and/or medicines, and; (ii) *compra al barrer* or volume-based “sweep” purchase based on the T-A standard. Payments in cash and small gifts to suppliers are common in order to enhance loyalties and secure future yields. Nevertheless sweep purchases stand as a strong disincentive for quality-oriented production and limit production-oriented modes of upgrading. Moreover, financial hardship and trading dependency of peasants force them to accept transactional conditions imposed by *alcanzadores* who pay between US\$2 and US\$2.8 per pound of fibre. Adulteration practices during exchange are widespread and include addition of water, salt or lime to fleeces to increase weight as well as the use of manipulated scales. These practices force textile industries to discard 25-30% of fibre after collection at plant.

*Rescatistas* operate in weekly organized local and regional fairs<sup>39</sup>. They collect fibre from *alcanzadores* and sweep purchase directly from collectivist mid-sized producers for further distribution to *grandes acopiadores*. Around six families based in Juliaca - the national hub of fibre distribution - compose a cartel concentrating nearly 90% of domestic trade. Fibre is kept in poorly maintained warehouses and exposed to environmental contamination and humidity, thus further affecting quality. According to Brenes et al (2001), *grandes acopiadores* smuggle around 5% of their stocks to Bolivia through highly permeable state borders. Marginal volumes of lower quality are also sold

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<sup>39</sup> The most important weekly fairs take place in Macusani, Ñuñoa and Ilave in Puno, Sicuani in Cuzco and Santa Lucia and Caylloma in Arequipa. Major annual fairs organized during Catholic festivities include Virgen de la Inmaculada (December 8), Christmas and Easter.



to small textile industries<sup>40</sup> clustered in Arequipa. However, more than 90% of fibre in Juliaca is delivered to business agents working for Michell and Incatops.

Business agents are responsible for organizing competing middlemen networks through which Michell and Incatops exercise hands-off governance of the chain. Besides the provision of *habilitacion* and supervision of fibre transportation from Juliaca to Arequipa, business agents also purchase raw produce from large-scale collective producers for whom better prices than smaller peers – approximately 20-30% higher - apply. Volumes collected from these producers range between 250 and 2000 quintales. Although fibre production and trade are seasonal, agents and middlemen operate year round. They are considered a necessary evil by suppliers and buyers alike because they significantly increase transactional costs, widen information asymmetries and reduce quality of fibre through malpractice. Nevertheless, chain articulation without their intervention would be impossible.

Domestic demand comes from over 30 textile industries and an unknown number of artisans<sup>41</sup>. Until PROSUR was purchased by Incatops in 2011 these large textile industries, alongside Michell, configured an oligopsonic/oligopolic fibre market with export shares of 11%, 23% and 55%, respectively (Fairfield, 2006). They also jointly accounted for 85% of domestic fibre supply and had a combined export share of 90% of the national total. To present, Michell and Incatops are technology-intensive firms covering all functional stages of the chain. Fibre collected at industrial plants is manually and visually classified by highly experienced women known as *maestras clasificadoras* following quality criteria set by private standards (see Table 11). After classification fibre undergoes a process of industrial transformation. Tops and yarns currently represent 75% of total exports and prices paid for these goods range from US\$3.5 to US\$18/kg depending on quality (de los Rios, 2010). Final goods such as cardigans and suits can reach the thousands at international boutique stores<sup>42</sup>. Around 85-90% of fibre goods are exported to more than

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<sup>40</sup> Until December 2012 there were over 30 Small Textile Industries involved in fibre production. These firms have less than 50 staff members. Over 90% of their production – 75-85% devoted to production of tops and yarns – is sold in Peru. Registered as anonymous societies, among the most important are Chachani Textiles, Santa Isabel, Clamasac, Pitata and Alcoser.

<sup>41</sup> Although no specific figures exist for the fibre sector, data provided by MINCETUR (2001) estimates that 100,000 artisans are involved in the Peruvian textile industry of which less than 25,000 are formally registered as SMEs. The same source estimates that only 3% of artisans are engaged in textile GVCs while 77% operate within subsistence economies.

<sup>42</sup> Among Incatops clients are well known firms such as Lacoste, Boss, Sacks, Nordstrom and Talbocks (Yamada and Chacaltana, 2007).

40 countries while the remaining 10-15% is sold nationally at exclusive stores such as Alpaca Sol and Alpaca III owned and managed by Michell and Incatops respectively.

### 3.5. The Peruvian Technical Norm: origins and technical characteristics

In 2001 fibre represented 1.35% of national exports amounting US\$71 million of which 80% corresponded to intermediate goods (MINCETUR, 2012). As diversification of export destinations progressed – particularly to China and Asian markets - competition from fine fibres such as cashmere and angora intensified. Fibre quality became the main concern of LTIs which proposed to the National Council for South American Camelids (CONACS) the formal creation of the Peruvian Institute of Alpacas and Camelids (IPAC)<sup>43</sup>. In 2002, IPAC and CONACS launched the National System for Collection and Commercialization of Alpaca Fibre (SNARF) to concentrate and organize fibre collection from fragmented small-scale producers through implementation of Local Collection Centres (LCCs). Peasant cooperatives such as the Cooperative of Production and Special Services for Small Alpaca and Vicuna Producers (COOPECAN), Central Alpaca Cooperatives of Puno (CECOALP) and the Peruvian Society of Llama and Alpaca Breeders (SPAR)<sup>44</sup> assumed management responsibility of LCCs and received financial, managerial and technical support from Regional Agrarian Directions (RADs) – decentralized agencies of the Ministry of Agriculture - and NGOs for this purpose. Public auctions of fibre were conducted under a new set of quality standards - the Normas Técnicas Peruanas de Fibra de Alpaca or Peruvian Alpaca Fibre Technical Norms (PTNs) - jointly developed by national experts from LTIs, CONACS and the National Agrarian University.

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<sup>43</sup> CONACS was created by the Peruvian government in 1992 to design and implement policy in the alpaca fibre and meat sectors but was deactivated in 2007. IPAC was the first public-private organization responsible for market coordination, quality promotion and technological transfer in the fibre industry. Besides LTIs and CONACS, other members of IPAC were the Commission for the Promotion of Exports (PROMPEX), Ministry of Agriculture (MINAG) Ministry of Production (PRODUCE), the National Agrarian University of La Molina as well as national NGOs and fibre producers' organizations.

<sup>44</sup> The Cooperative of Production and Special Services for Small Alpaca and Vicuna Producers (COOPECAN) is a collectivist peasant organization composed by 6,000 small-scale producers based at LCCs in Apurimac, Arequipa, Ayacucho, Cuzco and Huancavelica. Founded in 2003, the Central Alpaca Cooperatives of Puno (CECOALP) assumes political and market representation for eight peasant communities also engaged in fibre production and trade at LCCs. Finally, the Peruvian Society of Llama and Alpaca Breeders (SPAR) is an organization of national reach with chapters in ten fibre producing regions of the country. It represents the interests of nearly 15,000 producers - an unknown number involved in LCCs - with textile industries and government.

After two years of fibre auction trials the PTNs were formally approved and endorsed by the National Institute for the Protection of Intellectual Property Rights (INDECOPI) in 2004. The PTNs are voluntary public-private standards composed of six norms regulating fibre length, diameter and colour and fleece quality proportions which apply equally for huacaya and suri breeds. The six norms are: (i) PTN 231.300 – 2004 for fleece categorization; (ii) PTN 231.301 – 2004 for fibre classification; (iii) PTN 231.302 – 2004 for fleece categorization and sampling procedures; (iv) PTN 231.303 – 2004 for median fibre diameter determination through Air-Flow Methodology; (v) PTN 231.304 – 2004 for length determination of fibre streaks, and; (vi) PTN 231.305 – 2004 for essay methods to determine fibre moisture content (INDECOPI, 2004). The last four standards are restricted to laboratory testing methods and have no importance in market transactions. This study will only assess the impact of field-based PTN 231-300 – 2004 and PTN 231-301 – 2004 on upgrading modes and organizational shifts in the AFC. The purpose of PTNs is to increase fibre quality and promote market-based transactions. It is expected that adoption will facilitate formal chain engagement of fragmented small-scale producers and promote product/process upgrading to increase competitiveness of the fibre textile industry (INDECOPI, 2004).

The PTN 231.300 – 2004 provides general guidelines and procedures for fleece categorization on field. Categorization is a preliminary stage of visual and manual assessment of fleeces based on breed, colour, length and superior/inferior fibre quality proportions above or below  $26.5\mu$ <sup>45</sup>. As shown in Table 12, four fleece categories are established depending on their content of superior and inferior fibre qualities. It should be noted that Baby fibre is not related to animal age but to qualities of fibre with  $20\mu$  or less as opposed to T-A standard which is not concerned with fleece categorization based on fibre quality but animal age.

Table 12. Peruvian Technical Norm 231-300 – 2004 for fleece categorization

Categorization	Fibre Content		Length (mm)	Color	Min. content Baby (%)
	Superior qual. cont (%)	Inferior qual. cont (%)			
Extra Fine	70 or more	30 or less	65	Full	20
Fine	55 to 69	45 to 31	70	Full	15
Semi Fine	40 to 55	60 to 45	70	Full-white haired	5
Thick	Less than 40	More than 60	70 or less	Full-white haired	

Source: Peruvian Technical Norm 231.300 – 2004 (INDECOPI, 2004)

<sup>45</sup> Extra-fine categories are associated to fibre qualities below  $23\mu$ , Fine from  $23.1$  to  $26.5\mu$ , Semi-Fine from  $26.6$  to  $29\mu$  and Thick with qualities of  $29.1\mu$  or more.

The PTN 231-301 – 2004 is also a product and process standard to be applied after fleece categorization. Through a more meticulous manual and visual assessment it defines and provides quality parameters for six classes of fibre (see Table 13). The norm states maximum percentages of humidity, mineral solids and grease to discourage adulteration practices. It also specifies fibre lengths under 7cm for adequate industrial transformation and establishes 15 natural colours including white, grey, brown and black where a premium is paid for white fibre. Both fibre categorization and classification under PTN standards are highly specialized and gender-based activities conducted by maestras clasificadoras.

Table 13. Peruvian Technical Norm 231-300 – 2004 for fibre classification

Class	Diameter (microns - $\mu$ )	Length (mm)	Humidity (max. %)	Mineral solids (max. %)	Grease (max. %)
Baby Alpaca (BA)	Up to 23	65	8	6	4
Alpaca Fleece (AF)	23.1 - 26.5	70	8	6	4
Alpaca Medium Fleece (MF)	26.6 - 29	70	8	6	4
Huarizo	29.1 - 31.5	70	8	6	4
Thick (G)	31.6 plus	70	8	6	4
Mixed Pieces (MP)	/	20 - 50	8	6	4

Source: Peruvian Technical Norm 231.301 – 2004 (INDECOPI, 2004)

Categorization is not a pre-requisite for fibre classification although both follow specific labelling and packaging procedures to allow traceability. Prices paid for classified fibre are 10% higher than those of compatible categorized fibre. Error margins of manually and visually assessed fibre are as low as 1-1.5 $\mu$  but exact diameters can only be determined with electronic fibrometers. Peru has three PTN designated laboratories, two owned by the dominant Michell and Incatops each and the Laboratory for Textile Fibres based at the National Agrarian University. Large textile industries offer fibrometric services but fees are prohibitive for small and mid-sized collective producers. Services offered by the university laboratory are cheaper but transportation of samples to Lima can only be afforded by large scale producers.

### 3.6. Standardization and organizational upgrading in the fibre chain

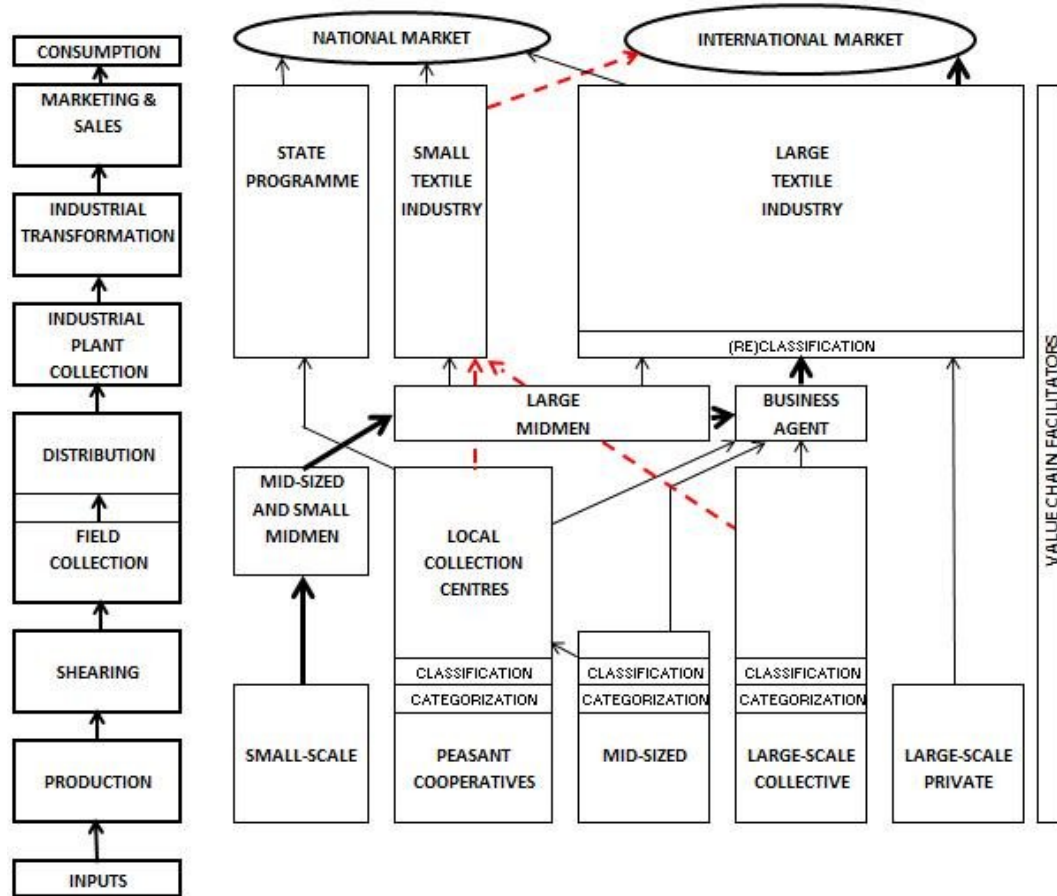
Shortly after completion of SNARF in November 2004 LTIs withdrew from public fibre auctions denouncing fibre adulteration and poor packaging/labelling practices at LCCs. Reliability of fibre categorization and classification were questioned arguing that maestras clasificadoras from the highlands had inferior skills than those working at their textile plants in Arequipa. As a result prices for fibre classified at LCCs were regularly

penalized at industrial plant collection through “reclassification” fees. On the other hand, LCCs denounced LTIs’ lack of commitment to market-based transactions and IPAC’s readiness to serve industrial interests given its full financial dependence on Mitchell and Incatops. Criticisms against LTIs were unanimously shared by regional agrarian officers and NGO respondents. For mid-sized private producers and large-scale ones trading conditions remain almost unchanged after PTN implementation as LTIs have improved (but undisclosed) their contractual arrangements. On the other hand mid-sized collectivist producers have taken advantage of shearing and categorization services offered at LCCs through which they now sell their produce.

Diffusion of PTN standards was actively promoted by peasant cooperatives and chain facilitators at rural districts and peasant communities from Pasco to Puno. Estimates provided by regional agrarian officers place PTN adoption rates at 10-20% among small-scale producers until 2008. Formation of LCCs was the first step pursued by RADs which acted as political counterweights to LTIs to enforce PTN-based transactions. Peasant cooperative members were actively involved in LCC formation, registration and formalization and benefited from regular management training provided by chain facilitators. This support was fully conditioned on adoption of PTN standards. Through guided formation of LCCs, small-scale producers acquired organizational capabilities through learning by doing, from setting management boards to complying with PTN-based fibre transactions. Moreover, registered and formalized LCCs gained access to public credit and technical training for product and process upgrading, most notably in reproduction management (e.g. controlled mating, registries) and manual/mechanical shearing techniques.

The demand vacuum left by LTIs after SNARF deactivation was filled by small textile industries capable of absorbing LCC supply. Concentration of supply also allowed LCCs to bypass middlemen networks, therefore break relational captivity and avoid transactional costs. Repeated market transactions between LCCs and small textile industries also led to establishment of formal alliances actively promoted by regional agrarian officers. Through semi-formal contracts between peasant cooperatives and small textile industries, fibre from LCCs was industrially transformed into intermediate and final goods for national and international markets. Rents generated by these sales were shared following specific contractual arrangements. Structural changes brought by these novel interactions stemming from standardization are shown in Figure 7.

Figure 7. Structural shifts in the fibre chain after PTN implementation



Source: Own elaboration

Individual small-scale fibre producers unable to adopt PTN standards due to geographical and financial limitations remain the largest fibre suppliers responsible for 75-80% of national output. For them, PTNs act as entry barriers given prohibitive adoption costs including transportation, shearing and categorization services. Nominal membership in peasant cooperatives does not revert isolation and informality, excluding them from participation at LCCs and its related benefits (e.g. credit sources and technical assistance from regional agrarian agencies). Moreover, PTN diffusion is actively discouraged by middlemen who enforce T-A standards to avoid rents being sliced by LTIs. On the other hand, LCCs managed by peasant cooperatives have been able to access international markets through vertical integration with small textile industries. Alliances such as COOPECAN-Chachani Textiles and CECOALP-Santa Isabel now export intermediate and final goods to Italian and Swiss markets although shipments rarely exceed US\$100,000. These novel interactions configure a virtuous cycle between organizational, product (e.g. controlled mating) and process upgrading (e.g. shearing,

fibre categorization/classification) by LCCs and product (e.g. garments) and process upgrading (e.g. new textile machinery) by small textile industries.

Sweep purchased and categorized fibre prices increased 65-75% from 2004-2005 to 2007-2008 seasons (see Table 14). According to organized producers and chain facilitators, through PTN-driven product upgrading (e.g. controlled mating) and process upgrading (e.g. mechanical shearing) by LCC suppliers the proportion of extra-fine and fine fibres increased from 10% to 20-25% of total national output in four years. Prices paid for these categories were 30-60% higher than those offered under T-A standards but business agents resumed purchases at LCCs due to pressing international demand for quality. Higher prices promoted replication of LCCs which increased from 42 to more than 60 nationwide. As LCC-small textile industry alliances strengthened so did the proportion of value-added products which reached 20% of total small industrial output in 2008 from less than 5% before 2004. Nonetheless, Michell, Incatops and PROSUR retained control over 75% of total national supply.

Table 14. Price range (US\$) for sheared white huacaya fibre per standard per campaign

STANDARD	Category	SEASON / CAMPAIGN			
		10/2004 - 04/2005	10/2007 - 04/2008	10/2008 - 04/2009	10/2011 - 04/2012
Tui-Adult	T	2.4 - 2.8	3.2 - 4.0	2.2 - 2.4	2.4 - 2.8
	A	2.0 - 2.4	2.4 - 3.2	1.6 - 2.2	2.0 - 2.4
NTP 231.300	EF	3.2 - 3.6	4.4 - 5.2	2.6 - 3.0	2.8 - 3.2
	F	2.4 - 3.2	3.2 - 4.4	2.2 - 2.6	2.4 - 2.8
	SF	2.0 - 2.4	2.4 - 3.2	1.6 - 2.2	2.0 - 2.4
	T	1.6 - 2.0	2.0 - 2.4	1.2 - 1.6	1.6 - 2.0

Source: Own elaboration

Domestic prices peaked during the 2007-2008 campaign due to increasing and robust demand from China but fell 50-70% at LCCs and the rural hinterland at the aftermath of the 2008 global financial crisis. International buyers ceased purchases from overstocked LTIs and small textile industries forcing immediate intervention from the state. The MYPERU program was implemented authorizing direct purchases of fibre goods from artisans and SMEs and a US\$9.5 million credit fund managed by AgroBanco – the national agrarian bank - for direct purchases of raw fibre from small and mid-sized producers. State intervention through MYPERU program began in March 2009 leading to further organizational reconfiguration of the fibre chain (see Figure 7). Conditions for credit borrowers included creation of or membership at registered LCCs and application of PTN 231.300 -2004 fibre categorization procedures and transactions. Credit limits for

borrowing LCCs were defined through market valuation of their maximum production potential – quintales per season - and application of a 4% fixed annual interest rate and 1% service fee. The possibility of access to credit led to new replication of LCCs which by 2012 reached over 80 nationwide, 24 in Arequipa and 33 in Puno alone. Until 2011, Agrobanco had disbursed US\$7.5 million to 13,800 producers affiliated to 112 peasant cooperatives in Puno, Cuzco, Ayacucho, Arequipa, Huancavelica and Junin (Congreso de la Republica del Peru, 2013).

Fibre market recovery began in 2011 when exports reached US\$109 million, a 65% increase within ten years (MINCETUR, 2012). During this period, the proportion of intermediate goods decreased from 80 to 75% while value added goods climbed to 25% with China and the US as main destinations respectively (ibid). Some large-collective producers identified export opportunities of intermediate goods to Bolivian and Chilean markets and subcontracted manufacturing services from small textile industries (see Figure 7). Yet, Michell and Incatops were responsible for 90% of exports and 80% of domestic fibre purchases constituting a de facto duopoly/duopsony (Fairfield, 2006; de los Rios, 2010). Although LCCs strengthened negotiation capabilities of organized suppliers through supply concentration and vertical integration with small textile industries, the fibre market continued under dominance of LTIs through fixed prices and fibre “reclassification” fees. In an attempt to weaken this dominance, chain facilitators targeted two critical points for fibre chain intervention: (ii) process upgrading to correct deficient shearing at LCCs, and; (iii) third-party certification of services provided by independent maestras clasificadoras to terminate “reclassification” fees applied by LTIs.

Between 2008 and 2012, with support from regional agrarian officers and local governments, IPAC and Peruvian NGOs DESCO and Soluciones Practicas conducted several training programs covering manual and electromechanical shearing, especially in Arequipa, Puno and Cuzco which concentrate over 80% of national fibre production. Training programs were also offered to women hand-picked from peasant communities to become maestras clasificadoras. Until 2012 regional agrarian officers estimate that there were less than 100 professional shearers nationwide and less than 30 independent maestras clasificadoras working at LCCs in Puno. Following training around 50 maestras founded Pacocha S.A. and independent service firm for fibre categorization and classification. However, in spite of formalization, “reclassification” fees continued as LTIs argued lack of skills certification of maestras clasificadoras.



In 2013, with state endorsement from the National System of Evaluation, Accreditation and Certification of Educational Quality (SINEACE) and the Peruvian Institute for Evaluation, Accreditation and Certification of Basic Education (IPEBA), Soluciones Practicas organized training and certification programs for shearers and maestras clasificadoras in the southern Andean region. Sierra Exportadora, a state programme involved in production and trade policy for Andean economies, joined the same year to support Soluciones Practica's efforts. Training programs covered 10% of small-scale producers' population and after one year of implementation, the Peruvian government approved the Alpaca Sector Technical Competency Norms through which IPEBA granted third-party skills certification for shearers and maestras clasificadoras. Although no official figures are available Soluciones Practicas estimates that the number of formally registered and certified maestras clasificadores has doubled since 2012.

As of 2014 around 50% of LCCs are financially and politically supported by local governments. Organizational upgrading has also increased profits from raw fibre sales up to 30% through reduced transaction costs, improved shearing and certified fibre categorization services. However, chain facilitators agree that post-2008 global financial crisis, LCC replication has been mainly promoted by easy access to credit from Agrobanco rather than real domestic fibre market growth. Quick access to funding has also exposed corruption and mismanagement by peasant cooperatives responsible for LCC management. Furthermore, in contrast to middlemen who pay in cash for the full value of purchased fibre, LCCs provide an upfront payment of only 20-30% to its members delaying full payment of individual shares between two and eight weeks. Lack of management transparency is also discouraging LCC membership as management boards do not publish financial information regarding net profits, thus weakening trust among members. Lastly, almost 70% of credit funds from Agrobanco have been crowded by 22 LCCs associated with SPAR. This has led to formal accusations of corruption from other peasant cooperatives such as CECOALP and COOPECAN, thus further undermined credibility for the peasantry of LCCs. In light of these negative events and circumstances, possibilities for regression from organizational upgrading to hands-off captivity by LTIs remain open.

### 3.7. Discussion

Four modes of upgrading have been postulated in GVC research (Kaplinsky and Morris, 2001; Humphrey and Schmitz, 2002) – product, process, functional and inter-sectoral – to

investigate mechanisms, opportunities and limitations available for chain actors to climb the value addition ladder. Through acquisition of production-oriented capabilities chain actors can climb this ladder by improving their products through quality or design, reducing costs through more efficient production or acquiring new skills to expand productivity within or between productive sectors. However, for commodity suppliers embedded in highly informal, asymmetric and uncoordinated chains, opportunities to acquire and/or apply production-oriented capabilities do not necessarily lead to better terms of chain engagement and higher rents. Moreover, where product and process standards are enforced compliance does not guarantee improvement in socio-economic conditions. Studies on rice in Bangladesh (Minten et al, 2012), coffee in Indonesia (Neilson, 2008), shrimp in Vietnam (Tran et al, 2013) and cotton in West Africa (Bingen, 2006) empirically support these observations. Moreover, as Ponte et al (2014) find in a case study of the Asian aquaculture industry, climbing the value chain is infrequent even when product, process and functional upgrading are achieved.

I contend that an important conceptual bias underlying orthodox GVC approaches to upgrading - which numerous case study findings confirm - is exposed by Bair's (2005: 154) observation that "much of the recent chains literature, and particularly the GVC variant, has become increasingly oriented analytically towards... the micro level of firm upgrading". As briefly exposed in the theoretical section, firm-centred GVC upgrading tends to emphasize production as the concept initially borrowed by Gereffi (1999) is rooted in industrial organization studies. However, where firms are scarce and thousands of vulnerable small-scale producers abound, firm-centred and production-oriented modes of upgrading do not (and cannot) tackle alone political (power) and commercial (terms of trade) bottlenecks of commodity chains in the developing world. There are no incentives for producing better, bigger and/or faster if bully buyers are unwilling to pay as there are no production-oriented upgrading modes available for commodity suppliers to overcome political and market power asymmetries.

Since the introduction of the PTN and subsequent standardization of the fibre chain, product and process upgrading have been achieved by small-scale producers organized in LCCs. Product upgrading is expressed by a higher proportion of fibre qualities below 23 $\mu$  - from 10 to 20-25% of total national supply since 2004 - while fibre shearing, categorization/classification, labelling and packaging processes have significantly improved through training provided by chain facilitators. However, the possibility of acquiring and applying production-oriented capabilities and reaping off their benefits

has only been possible through organizational upgrading. This upgrading form overcomes upgrading failures beyond production which largely depend on buyer power (Schmitz, 2006). Organizational upgrading is rooted in an old and simple yet overlooked principle of empowerment through agglomeration through which small-scale producers can exercise market power by trading larger volumes. In addition, political and technical support from chain facilitators configures a more trade-enabling environment and greater returns through product and process upgrading stemming from organizational upgrading.

Organizational upgrading is institutionally expressed by local collection centres (LCC) and peasant cooperatives responsible for their management. Organizational capabilities acquired through formation and formalization of LCCs as well as conformation of their basic management structures has allowed supply concentration and organization for 10-20% of small-scale producers' population. Higher volumes of produce have automatically increased bargaining power of organized suppliers allowing them to bypass middlemen and avoid transaction costs. Breaking transactional captivity from middlemen also means freeing from hands-off governance from LTIs. Concentration and organization of better quality produce has offered LCCs the opportunity to deal directly with other buyers such as small textile industries, business agents and, since 2008, the state.

Product and process upgrading cannot achieve results of organizational upgrading on their own as they lack the trade-enabling power of the latter. Functional upgrading does not apply to organized suppliers as fibre categorization and classification are highly specialized and gender-based activities still conducted by *maestras clasificadoras*. From a conceptual perspective possibilities of functional upgrading in (quasi)-hierarchical chains are ruled out due to market power and stronger competencies of lead firms (Schmitz, 2006; Gibbon, 2008, Ponte et al, 2014). Yet, organizational upgrading also differs from functional upgrading in one fundamental aspect; organizational upgraders perform the same functions and remain in the same chain position after acquiring organizational capabilities. Inter-sectoral upgrading is not possible for fibre producers given that no alternative production activities are available at 4,000 masl or above. Nonetheless, the theoretical parallel with functional upgrading can also be established with inter-sectoral upgrading when shifting comparisons from intra-chain to inter-chain activities and when considering that organizational upgrading, unlike inter-sectoral forms, encompasses acquisition of a new set of skills.

A second achievement of organizational upgrading has been vertical integration of LCCs with small textile industries. Voluntary and semi-formal alliances such as COOPECAN-Chachani Textiles and CECOALP-Santa Isabel have been actively promoted by regional agrarian agencies. Direct fibre supply from LCCs to small textile industries under PTN conditions does not incur in reclassification fees of LTIs. Quality fibre and access to international markets has prompted technological upgrading of small textile industries through modernization of equipment and expansion of installed capacity resulting in a higher proportion of final goods, from less than 10% in the early 2000s to over 20% to present. Indirect access of small-scale producers to international markets through small textile industries would have been unthinkable before the 2000s and certainly impossible without organizational upgrading. In spite of these improvements, dominance of LTIs in exports - both in terms of access to foreign buyers and size of shipments - remains unchallenged.

Positive externalities generated by organizational upgrading at LCCs are also expressed by shearers and maestras clasificadoras. Training programs provided by chain facilitators have led to organizational upgrading of the latter with the creation of service firms such as Pacocha S.A. Moreover, in response to unsatisfied demand for fibre categorization/classification services at LCCs, the number of maestras clasificadoras has doubled since 2012. Alongside formalization has come third-party skills certification for shearers and maestras clasificadoras under the SINEACE framework which is gradually reducing “reclassification” fees imposed on LCCs by LTIs. Overall, commercial empowerment through organizational upgrading has led to more formal, transparent and better coordinated bottom-end segments of the fibre chain

In spite of benefits brought by organizational upgrading to small-scale producers’ welfare, replicability and long-term sustainability of LCCs confront some major challenges. First, PTN adoption rates are only 15-20% among small-scale producers’ population. Yet, concentration of total supply from 10% to 25% is an impressive achievement considering the short period of standardization as well as the chain’s geographical barriers and structural problems (e.g. informality, poor infrastructure) which avoid network effects. A second limitation comes from rural-to-urban migration by the youth in search of better job prospects. Elders are left behind to take charge of fibre production and trade activities. However, as noted by chain facilitators, training programs have a minor impact as elders tend to absorb less information and stick to traditional modes of production. A third limitation is posed by middlemen who actively

discourage PTN diffusion and strictly enforce T-A standards on captive small-scale producers. Prices paid under PTN conditions are 30-60% higher, partly because transaction costs are avoided by small organized producers. By rationally limiting PTN diffusion middlemen protect their rents being sliced by LTIs.

An important threat to acquisition of organizational capabilities aroused after the 2008 Global (Western) Financial Crisis. Between 2004-2005 and 2007-2008 organizational upgrading was mainly a PTN-driven process<sup>46</sup>. However, as foreign demand ceased so did fibre purchases from overstocked small textile industries and LTIs. State intervention through MYPERU program was necessary to attend vulnerable chain actors. Credit through Agrobanco was tied to the creation, registration and formalization of LCCs and peasant collectivist organizations under PTN conditions. However, steady market recovery since the 2011-2012 season has not tempered demand for public funding. Continuity of credit generates dependency hindering PTN-driven organizational upgrading. Moreover, replication of LCCs triggered by state funding configures bubbles prone to collapse. In this scenario organized suppliers would regress from positive captivity by the state – transactional (PTN) conditions are imposed by the state but beneficial to them – to negative captivity by middlemen where transactional (T-A) conditions unfavourable to small-scale producers' interests are imposed on them too.

The second major threat to organizational upgrading comes from internal corruption and mismanagement of LCCs following the 2008 credit boom. With easy and quick access to Agrobanco funds, regional agrarian officers mention that LCC management boards have become less interested in publishing financial information (e.g. monthly reports on net benefits) leading to widespread mistrust from LCC members, chain facilitators and small industrial partners. Alongside lack of transparency and semi-formality, incomplete and late payments to LCC members have become a powerful disincentive for organizational consolidation and LCC replication. Only 20-30% of the post-sale value is paid upfront for individual members and waiting periods of two months for full payment are common. On the other hand, middlemen provide immediate full payment while guaranteeing future purchases to compadres. In poverty ridden environments, delayed payments compromise satisfaction of basic needs leading to further erosion of social capital.

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<sup>46</sup> By proto-market I refer to spot-price transactions among LCCs and STIs but still based on fixed prices set by LTIs.

Overall, organizational upgrading in the fibre chain can provide useful lessons for quasi-hierarchical (Humphrey and Schmitz, 2002) commodity chains across sectors and countries. In contrast to production-oriented modes of upgrading, organizational upgrading improves terms of chain engagement by reducing power asymmetries in informal and fragmented chains. As noted by Kaplinsky (2010), while costs of standards compliance and poor chain coordination may limit upgrading, standardization processes offer opportunities for acquisition of capabilities through learning by doing, complying and organizing. Comparative studies on organizational upgrading stemming from standardization or other exogenous and/or endogenous processes of change are recommended for similarly structured commodity chains in terms of modes of association (e.g. private-public, semi-formal-formal), sustainability, results, externalities and institutional configurations among others to develop and expand specific and policy-oriented organizational upgrading forms.

### 3.8. Conclusions

This paper has adopted a GVC approach to explain organizational upgrading in the Peruvian alpaca fibre chain following the introduction of standards in 2004. Around 160,000 small scale producers are the main target of public-private standardization efforts to raise fibre quality. A network of middlemen articulate fragmented supply in the highlands with concentrated demand in Arequipa where two dominant domestic textile industries exercises hands-off governance on the fibre chain. Traditional modes of upgrading are production oriented and allow producers to climb the value addition ladder through improvements in quality and output. However, product, process, functional and inter-sectoral upgrading fail to overcome critical limitations of commodity suppliers, namely unfavourable terms of engagement underpinned by market and non-market power asymmetries.

With active support from chain facilitators and within a 12 year time-span, 10-20% of small-scale producers have adopted PTN standards. Adoption is expressed by the emergence of LCCs managed by peasant cooperatives which have increased from 42 to over 80 nationwide since 2004. Concentration and organization of supply has increased bargaining power of PTN adopters allowing them to bypass middlemen networks, reduce transaction costs and capture higher rents. Organizational upgrading is also observed among support service providers, namely shearers and maestras clasificadoras through creation of a service firm complemented by state-sponsored skills certification programs.

Formalization as a pre-condition set by Regional Agrarian Directions has facilitated product and process upgrading resulting in higher proportions of fine fibre and more efficient processing from production to collection at industrial plant stages. Product and process upgrading stemming from organizational upgrading is also expressed by vertical integration of LCCs with small textile industries. A higher proportion of final goods through novel access to international markets is also observed.

Organizational upgrading and formalization have allowed organized suppliers to access public credit post-2008 Global Financial Crisis. However, sustainability of organizational upgrading is threatened by public funding. Credit-driven LCC replication may lead to regression from positive captivity by the state to negative captivity by middlemen networks after public credit exhaustion. Moreover, internal corruption and mismanagement of LCCs erode social capital among organized members who may regress to the less favourable but more secure purchases by middlemen. These threats may render organizational upgrading unsustainable.

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## CHAPTER 4 – STANDARDIZATION AND GOVERNANCE DYNAMICS IN THE PERUVIAN ALPACA FIBRE VALUE CHAIN

### Abstract

This paper examines governance dynamics stemming from standardization in the Peruvian alpaca fibre chain. An empirically informed framework resembling the fibre chain's supply-demand structure provides the operational means to trace segmented governance dynamics. Particular attention is paid to vertical and horizontal interactions among national chain actors and institutions. By tracing standardization processes in the fibre chain since the mid-1990s it is possible to identify and characterize specific shifts in governance modes through time. Findings show that far from neat and homogeneous GVC governance typologies, segmented governance modes co-exist but do not co-evolve as standardization unfolds in the fibre chain. Comparative case studies using the proposed framework are encouraged for a more comprehensive understanding of governance dynamics of commodity chains in the developing world.

Key Words: Global Value Chains, segmented governance, standardization, alpaca fibre, development, Peru

### 4.1. Introduction

Through a constructivist Global Value Chain (GVC) approach this paper analyses governance dynamics stemming from standardization in the Peruvian alpaca fibre chain. Since the mid-1990s, increased international competition brought by fine animal fibres such as cashmere, angora and mohair has forced the Peruvian fibre industry to upgrade quality of raw produce through product and process standards. For Nadvi and Waltring (2002: 6) standards are “agreed criteria by which a product or a service performance, its technical and physical characteristics, and/or the process and conditions, under which it has been produced or delivered, can be assessed”. Beginning with a state-led program in 1997 followed by an on-going process since 2002, standardization – the cyclic and dynamic process of standards formation, diffusion, adoption and enforcement – has influenced fibre market and non-market interactions among national suppliers, buyers and middlemen. The aim of this paper is to show how governance dynamics - the micro and meso interactions among chain actors - has been influenced by standardization leading to segmented governance shifts within the same chain.

Governance is commonly defined as coordination of market relations among asymmetrically powerful actors (Gereffi, 1994; Gereffi et al, 2005). Governance matters because it determines access to markets, upgrading opportunities, distribution of rents, opportunities for policy intervention and technical assistance for chain stakeholders (Humphrey and Schmitz, 2001). Literature on GVCs has analysed the role and impact of standards on governance in fresh fruits and vegetables (Dolan and Humphrey, 2000), agro-food systems (Konefal et al, 2005), coffee (Muradian and Pelupossy, 2005) and fish-based products (Bush and Oosterver, 2007). Standards as drivers for chain inclusion (or exclusion) have been assessed in the coffee (Bacon, 2005), cotton (Bingen, 2006) dairy (Vuylsteke et al, 2003) and agro-food industries (Reardon et al, 2001). Case studies have also investigated the influence of standards on structural change (Neilson, 2008), rent distribution (Swinnen et al, 2007) and power asymmetries (Busch and Bingen, 2006). These research efforts have exposed social and economic determinants underpinning governance dynamics in value chains.

Dominance exercised by international lead firms has been a recurrent analytical concern of GVC studies on governance (Ponte and Gibbon, 2005; Ponte, 2009). In this regard, Nadvi (2008) warns us about the growing weakness of nation-states in shaping norms and regulations as supra-national standards proliferate and consolidate vertically integrated chains. However, concentration of power by one party – usually dominant lead firms - invite the application of generic governance typologies such as producer or buyer-driven (Gereffi, 1999). By doing so, GVC research runs the risk of missing critical domestic interactions that may impact overall chain governance. For instance, although acknowledging that “multiple governance structures may exist along a chain”, Tran et al (2013: 3) characterize the Vietnamese shrimp chain as buyer-driven<sup>47</sup>. Studying the same industry in Bangladesh, Islam (2008) proposes a twin-driven governance mode in which dominance of international lead firms on the supply base is challenged by third-party certifiers. Yet, through linear GVC input-output approaches, domestic governance dynamics are not fully exposed by these valuable studies.

The Peruvian alpaca fibre chain is characterized by a highly fragmented supply base and concentrated demand side articulated by middlemen networks. This structural configuration can also be found, among others, in chains such as cut-flowers in Ethiopia

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<sup>47</sup> This observation rests on Ponte and Gibbon (2005: 3) who argue that although a chain may have different and segmented coordination forms it will still show a “single and relatively coherent mode of overall governance”.

(Gebreyesus and Sonobe, 2012), coffee in Nicaragua (Bacon, 2005) and spices in Tanzania (Akyoo and Lazaro, 2007). However, by generically labelling these commodity chains as buyer-driven the role and impact of international lead firms tends to obscure the rich and complex interactions among nationally embedded actors and institutions (Hough, 2010; Neilson, 2013). A second limitation refers to instrumental approaches of standards conditioned by linear input-output GVC models. Yet, as pointed out by Timmermans and Epstein (2010) more attention needs to be paid to standardization as a process which given its dynamic and cyclic nature poses methodological and operational challenges to the functional and rigid input-output GVC structure. Third, GVC studies have assessed the effects of supra-national or “northern” standards in detriment of nationally elaborated or southern ones. An exception to this trend is Riisgard’s (2009) work on the impact of national private labour standards introduced into the Kenyan cut-flower market.

In an attempt to partially fill these gaps, I will examine how southern standardization affects governance dynamics in the Peruvian alpaca fibre chain. This process and its effects on chain governance dynamics will be examined before and after the formal introduction of the Peruvian Technical Norms (PTN) – a set of product and process standards – starting with the failed 1997-1999 MITINCI process and ending with the on-going PTN standardization process in 2013. This case study is useful because: (i) it shifts attention from the role and impact of international lead firms on chain governance to domestic market and non-market interactions and chain dynamics; (ii) governance is examined through the lens of standardization as a process beyond instrumental and linear approaches; (iii) the analytical focus shifts from overall governance typologies to domestic segmented governance dynamics stemming from standardization, and; (iv) the alpaca fibre chain is structurally similar to commodity chains across sectors and countries opening possibilities for comparative research. By studying standardization processes in the alpaca fibre chain since the 1990s it will be possible to trace segmented governance dynamics.

Following this introduction, I provide a theoretical review of the key concepts of governance and standardization used in this paper. This is complemented by a brief presentation of functionalist and constructivist approaches to standardization, the latter underpinning the paper’s conceptual and operational approach. Afterwards a brief methodological outline is followed by a presentation of the bi-dimensional framework applied to operationalize the key concepts. A short historical overview of the Peruvian

fibre industry is then provided to introduce its main actors and institutions which sets the background for tracing, describing and explaining governance dynamics stemming from standardization in the fibre chain. This empirically informed section provides the basis for a three-pronged discussion on fibre stakeholders' interests, outcomes of ongoing standardization and operational attributes of the framework for the study of segmented governance dynamics in commodity chains. Findings show that far from neat and homogeneous overall governance typologies, segmented governance modes in the fibre chain co-exist but do not co-evolve towards a market governance mode as pursued by fibre standardization. Conclusions are provided in the final section.

## 4.2. Theoretical Review

### 4.2.1. Governance

Global Value Chains (GVCs) are empirically-informed constructs aimed at describing and explaining how fragmented global production networks are organized and coordinated. The framework is useful to map and track the passage of goods from conception or extraction to end consumption as well as the processes of value-addition performed by actors engaged in the chain. Coordination of market relations throughout input-output structures of chains are the core analytical concern of GVCs. This paper adopts the definition of governance as coordination of market relations among asymmetrically powerful actors (Gereffi, 1994; Gereffi et al, 2005). Through governance, linkages among actors as well as the organizational and institutional arrangements configuring these linkages can be better understood. How chains are governed has direct implications on how its resources and rents are generated, controlled and distributed by stakeholders ranging from small-scale producers to powerful international firms.

Governance patterns differ across countries and industries due to context-specific organizations and institutions. Two governance modes were first elaborated and proposed by Gereffi (1994) who distinguished between producer and buyer-driven chains<sup>48</sup>. In producer-driven chains lead firms exercise dominance over actors located downwards to organize and coordinate vertical production and exchange networks.

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<sup>48</sup> Kaplinsky (2000) conceptually expands Gereffi's (1994) definition of governance to three forms: (i) Legislative governance, in which internal chain actors set product and process standards for suppliers; (ii) Judicial governance, where the performance of suppliers with standards' compliance is monitored, and; (iii) Executive governance, where supply chain management supports suppliers in standards' compliance.



These chains are found in technology and capital-intensive sectors such as automobiles and electronics. On the other hand, labour-intensive industries constitute buyer-driven chains where lead firms coordinate decentralized networks of production. These firms can exercise direct control or hands-on governance over suppliers or hands-off governance via middlemen. The fibre chain, like most commodity-based chains such as coffee (Bain, 2010), shrimp (Islam, 2008; Tran et al, 2013) bananas (Liu, 2008) and cotton (Bassett, 2010), fits generically into the buyer-driven typology.

From this dual typology emerged the idea that certain actors with market power coordinate and drive structural change – both functional and geographical – in commodity chains (Gibbon et al 2008)<sup>49</sup>. Yet, when searching for more specific answers to questions such as what, how much/many, how, by whom and when should products be produced and delivered, Humphrey and Schmitz (2002) pinpointed one fundamental limitation; the dual typology is unable to empirically cope with more specific functional divisions of chains across countries and industries. Going beyond pricing and output issues, these authors added to the definition of governance the power that dominant firms have over suppliers to set and enforce parameters (ibid). These parameters refer to technical norms, legislation, prices and standards.

In response to these observations, Gereffi et al (2005) developed five new governance modes as follows: (i) market, where coordination is achieved through spot-price; (ii) modular, where competent suppliers follow buyers' specifications to deliver and satisfy specific product requirements; (iii) relational, where mutually dependent competent suppliers and buyers engage through close ties and reputation in the absence of codified information; (iv) captive, where producers with low capabilities are unable to handle complex (or codified) information containing product specifications. Switching costs are prohibitive and transactional conditions are unilaterally imposed on them by buyers, and; (v) hierarchical, where vertically integrated units of production remain under strong managerial supervision and control. For Humphrey and Schmitz (2002: 1018) a quasi-hierarchical mode of governance can also be configured if “asymmetry of competence and power in favour of one party (frequently the global buyer)” exists.

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<sup>49</sup> Governance as driving is one of three governance interpretations advanced by Gibbon et al (2008) to assess whether a single interpretation of governance is possible. The other two interpretations are governance as coordination and governance by normalization (e.g. standards enforcement).

Inter-firm linkages in this five-fold governance typology are conditioned by: (i) complexity of information to be handled among partners; (ii) codifiability of information or the ability of partners to codify, interpret and apply codified information, and; (iii) suppliers' capabilities to cope with complex and codified information for more efficient and effective production and exchange. These factors condition the dynamic nature of chain coordination or governance in contrast to the static views on technology and entry barriers that characterized producer and buyer-driven modes (Sturgeon, 2008). Nevertheless, these five governance modes are slightly oriented towards formal markets and technology-driven sectors, thus do not always replicate productive and commercial interactions taking place in commodity chains in the developing world. For instance, relational governance between illiterate suppliers and middlemen can also be sustained by trust and/or reputation alone while hierarchical modes can be configured if complex manufacturing and intellectual property issues are of minor concern.

#### 4.2.2. Functionalism, constructivism and standardization

Standards play a fundamental role in shaping socio-economic, political and cultural orders from local to supra-national levels. Researchers working on a number of disciplines ranging from economics to sociology have studied standards through functionalist and constructivist approaches (Feng, 2003). Under the linear and rationalist perspective of functionalism which focuses on technical compatibility and economic efficiency issues, neoclassical economists have studied the impact of standards through network externalities (David and Greenstein, 1990, Farrel and Saloner, 1985; Katz and Shapiro, 1985), increasing returns (Arthur, 1989), competition or "standards wars" (Shapiro and Varian, 1999) and firm strategies for standards adoption (Besen and Farrel, 1994; Glimstedt, 2001). However, criticisms to functionalism point out to analytical fixation on equilibrium frameworks (Metcalf and Miles, 1994) as well as exclusion of political, social and cultural institutions from market oriented analysis (Aoki, 2001)<sup>50</sup>.

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<sup>50</sup> In contrast to the functionalist perspective the French School of Economic Conventions (FCS) (Boltanski and Thévenot, 1991; Salais, 2003; Thévenot, 2009) has researched relations embedded in context-specific markets, especially in those plagued by coordination failures and weak or inexistent institutions. The embedded market approach of the FCS is similar to the concept of proto-institutions developed by Aoki (2001). In both cases, institutions reduce uncertainty and allow the achievement of consistent behaviour and coordination over time. Both assume the inexistence of purposefully designed institutions before market developments. Both consider institutions in primitive form but do not provide explicit analysis of the interdependencies among them. Both view proto-institutions as the product of practical experience and which may evolve into basic institutions. If basic institutions emerge they are treated as endogenous rules such as customary property rights, social norms and contract enforcement mechanisms. Proto and basic

Constructivist research on standards appeared between the late 1990s and early 2000s in response to the linear-deterministic and market-oriented models of functionalism. This approach was led mainly by economic sociologists who posed normative questions on the moral dimensions of standards (Busch, 2000) while delving into concepts such as legitimacy and distributive justice (Busch and Bingen, 2006; Werle and Iversen, 2006). These works borrowed heavily from neo-institutional economics, namely transaction costs, coordination failures and information asymmetries (North, 1990; Williamson, 1979 and 1981) to inform market and non-market interactions among actors. Although marginal in number, some constructivist studies have also examined standardization through “social contagion” or diffusion of standards (Burt, 1987; Strang and Meyer, 1993) and “filiation” or adoption (Bowker and Leigh-Star, 2000) while paying attention to structural shifts brought by standardization in commodity chains of developing countries (Tanaka and Busch, 2003).

The constructivist relational models of standards diffusion and adoption were built largely on Rogers’ (1983) work on diffusion and adoption of innovations. For Rogers (1983: 5) diffusion is “the process by which an innovation is communicated through certain channels over time among the members of a social system.” Standards and standardization are powerful instruments and trigger processes of innovation and change. Although no positive correlation exists between diffusion and adoption, more diffusion can increase chances of adoption. Lack of cause-effect relationships between diffusion and adoption are partly found on Rogers’ definition of the latter where “compatibility with the values, beliefs, and past experiences of the social system” are incompatible with functional rationalism (Rogers, 1983: 4). This author then proposes five adoption mechanisms, namely: (i) Relative advantage, or whether the potential adopter perceives the effects of adoption as positive not only from an economic but also from a socio-cultural (e.g. social prestige and reputation) point of view; (ii) Compatibility, between the innovation and the values and norms embedded in a specific social system; (iii) Complexity, attached to learning and using the innovation which decreases with higher illiteracy levels; (iv) Trialability, through learning by doing or using, and; (v) Observability, associated to visible results, positive or negative, from others’ experience. These socio-culturally enriched mechanisms complement and expand the more market oriented governance determinants of complexity, codifiability and capabilities provided by Gereffi et al (2005).

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institutions configure the institutional context governing market and non-market interactions of many commodity chains embedded in the developing world.

While GVC studies have assessed prescriptive aspects of standards most sociological studies have explored their normative dimensions. Yet, both have done so at the expense of research on standardization as a process as earlier noted by Timmermans and Epstein (2010). Within the constructivist tradition, this vacuum has been partially filled by organizational studies through research on formation, diffusion and adoption of standards (Brunsson et al, 2012; Murphy and Garavan, 2009). Nevertheless, these studies lack a framework capable of tracing changes in chain governance dynamics stemming from standardization, an operational weakness that can be amended by the analytical tools and concepts provided by Global Value Chains.

#### 4.3. Research methods

For the purpose of completing this research a total of 22 semi-structured interviews were conducted during fieldwork in Peru between August and October 2012. Participants were selected following purposeful sampling but three of them were reached through snow-ball technique. Interviewees in Lima included representatives from the Ministry of Agriculture (MINAG), National Council of Science and Technology, National Institute for Competition Defence and the National Agrarian University. Six interviews were carried out in Arequipa, Peru's fibre textile industry hub, with representatives from the two largest fibre industries Michell and Incatops, the Peruvian Institute of Alpacas and Camelids (IPAC), Ministry of Production (PRODUCE), Regional Agrarian Direction (RAD) and the national NGO DESCO. The remaining 12 interviews were conducted in Puno, the largest fibre production region in the country. Respondents included small, mid-sized and large scale producers and representatives from Puno's RAD, the Agrarian Bank (Agrobanco), two NGOs – the national Soluciones Practicas and the French Agronomes et Veterinaires Sans Frontieres– and one mid-sized middleman.

The same questionnaire was applied to all interviewees. Eleven questions were aimed at understanding diffusion and adoption mechanisms (and estimates) of the PTN, role and impact of interviewees' organizations in the PTN standardization process, identification of collaborative, competing or restrictive organizations for standards implementation, comments on industry and informal standards and overall assessment of standardization in terms of quality and volume of regional and national outputs. In order to contrast individual responses and avoid institutional statements, I attended two sectorial meetings by invitation.

Hosted by IPAC, the PTN Technical Committee's quarterly meeting was held in Arequipa on September 28 with presence of 14 representatives from producers' collectivist organizations, Michell and Incatops, MINAG, PRODUCE, Arequipa RAD and DESCO. The Puno Regional Alpaca Roundtable was held on October 15 with 13 participants including an officer of Puno's RAD, representatives from Local Collection Centres (LCCs) of Capaso, Cojata and Santa Lucia districts and collectivist peasant organizations such as the Peruvian Society of Alpaca and Llama Breeders and the Central Alpaca Cooperatives of Puno. No recording was allowed during the Arequipa meeting but written notes and questions were permitted at both meetings. Discussions provided a clearer understanding of the position of actors within the fibre chain and the multiple and conflicting interests behind standardization, especially between Michell and Incatops and peasant collectivist organizations.

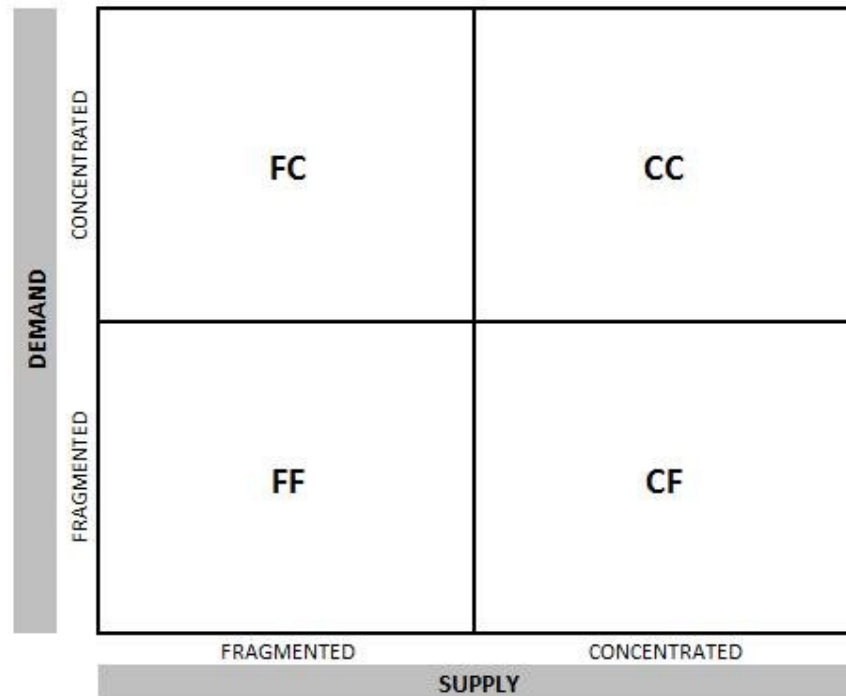
Through non-participant observation, additional visits were made to the industrial plants of Michell and Incatops in Arequipa to observe fibre collection and industrial processing. Informal visits in Puno included two LCCs and seven small-production units in the provinces of Lampa and Ayaviri to observe animal production and management practices as well as PTN-based transactions. These visits allowed me to acquire a more comprehensive and accurate impression of the standardization process and the relational nature of the fibre chain. Given fragmented and poor quality of information from secondary sources (e.g. official statistics) and reticence of LTIs to share private information, empirically based estimates on a range of standardization indicators were provided by RADs and NGO representatives, the fibre chain's main facilitators.

#### 4.3.1. Operational framework

A graphic representation of the paper's framework is shown in Figure 8. The supply-demand framework is inspired on the idea of "degrees of concentration" developed in the bi-dimensional framework of Lee et al (2012: 12327) linking GVC structures to agro-food standards. However, the supply-demand bi-dimensional framework (BDF) I propose does not apply overall governance typologies but disaggregates one overall type – the buyer-driven fibre chain – into four segmented governance or "sub-governance" modes applying Gereffi et al's (2005) five-fold typology. The framework is used to operationalize the paper's key concepts of governance and standardization in terms of segmented governance dynamics stemming from this process. By governance I refer to market and non-market linkages among asymmetrically powerful actors in parameters

are enforced. This definition combines those provided by Gereffi (1994), Gereffi et al (2005) and Humphrey and Schmitz (2002). Regarding standardization this paper adopts Botzem and Dobusch's (2012) definition as a cyclic, dynamic and context-specific process aimed at organizational change and institutional building. Particular attention is paid to standards diffusion, adoption and enforcement. These definitions underpin the non-linear constructivist nature of the supply-demand framework which moves beyond the linear GVC input-output analysis.

Figure 8. Bi-dimensional supply-demand framework (BDF)



Source: Own elaboration

The bi-dimensional supply-demand framework (BDF) is used to trace and describe segmented governance shifts and dynamics stemming from standardization processes in the fibre chain. The analytical focus is restricted to national actors and institutions involved in pre-export stages of the chain, namely fibre production, shearing, collection and distribution at textile industrial plants in Arequipa. By characterizing key actors and institutions, their vertical and horizontal relations, the nature of these relations (e.g. close ties) and the institutions (e.g. informal, semi-formal) which constrain their behaviour, chain governance dynamics can be better understood. Framework operationalization allows us to trace intra and inter-segment interactions among actors located within or at different quarters of the fibre chain. Power asymmetries

conditioning these micro and meso interactions will expose segmented governance configuring the apparently homogeneous buyer-driven typology of the fibre chain.

Standardization becomes the process through which we assess segmented governance shifts in the chain and through which we identify micro and meso-level changes in interactions. Specific socio-economic interactions are configured at each quarter of the framework. These configurations depend on degree of concentration or fragmentation of fibre supply and demand which in turn are determined by geographical and functional criteria. Geographical fragmentation or concentration is determined by the number of producers and buyers distributed throughout the territorial space in which fibre activities take place. Functional fragmentation or concentration is determined by the number of suppliers and buyers participating at any given pre-export stage of the chain as well as fibre outputs of producers and collected volumes of buyers during shearing and trade seasons.

Each quarter has a particular functional structure and institutional architecture constituting an integrated sub-system which determines aggregate segmented modes of governance. Standardization unfolding in the entire chain may impact socio-economic arrangements at each quarter with different intensity and direction which in turn may affect or not the overall governance of the chain. By intensity I refer to depth and breadth of changes in actors' interactions while direction refers to how each segmented governance quarter moves towards (or not) the overall market governance mode aimed by fibre standardization. In some quarters standardization may lead to governance shifts towards spot-price transactions while other segments may configure different modes or remain static. In spite of chain segmentation, the framework will pay attention to vertical and horizontal dynamics among co-existing quarters and overall dynamics of the chain. With the traditional linear GVC input-output structure these analytical tasks would be operationally unfeasible as GVC linearity tends to assess vertical linkages and mobility.

#### 4.4. Evidence of standardization in the Peruvian alpaca fibre chain

Peru is the largest producer of alpaca fibre in the world contributing with over 80% of total output (FAO, 2005). According to preliminary results from the IV National Agricultural Census, the country's alpaca population stands at 3,685,500 animals

distributed throughout the central and southern Peruvian highlands<sup>51</sup> (MINAG, 2012). Estimates of total national output for the years 2000-2010 are provided in Table 15. In 2010 the main export markets for tops and yarns were China (45%), Italy (22%) and the US (17%) while value-added goods corresponding to the remaining 25% of total exports were destined to the US (32%), Germany and Japan (13% each) and Spain (10%) (MINCETUR, 2012). Estimates on the number of people involved in the chain vary widely. According to Manrique and Grupp (2005) the fibre industry generates 150,000 direct and 500,000 indirect employments while Moya and Torres (2008) believe that as many as 2.9 million people are directly and indirectly involved given the industry's multiplying effect over chemical industries and transportation services.

Table 15. Total alpaca fibre production in Peru (metric tons), 2000-2010

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
2839	3142	2901	2910	2846	3117	3144	3268	3550	3873	3816

Source: Ministry of Agriculture of Peru (MINAG, 2012)

Alpaca fibre has been harvested since pre-Columbian times but production became export oriented from the 1840s onwards when large volumes began to be shipped to the UK. Following a period of contraction during the 1870s-80s due to war with Chile, the fibre industry recovered during the 1890s reaching export peaks during the First World War. As domestic production expanded so did middlemen networks organized by *casas comerciales*<sup>52</sup> in Arequipa for fibre collection from thousands of geographically isolated peasants. With larger volumes traded in the domestic market, powerful middlemen known as *grandes acopiadores* established permanent warehouses in Juliaca. However, successive international crises during the 1920s - namely the Liverpool wool market crash of 1920-21 and the Wall Street crisis in 1929 - devastated the southern fibre industry leading to foreign capital flight and severe economic depression.

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<sup>51</sup> Results from the III National Agricultural Census show that the southern regions of Puno, Cuzco and Arequipa concentrate the largest alpaca populations with 55%, 15% and 10% respectively (INEI, 1994). The remaining fibre production regions are Apurimac, Ayacucho, Huancavelica, Moquegua, Junin, Pasco and Tacna.

<sup>52</sup> *Casas comerciales* were trade warehouses founded by British merchants after Peru's independence from Spain in 1821. Based in Arequipa, they specialized in exports of wool and fibre and imports of European manufactured goods for the local elites. Growing exports during the 1890s widened participation for national *casas comerciales* which displaced their foreign peers. By the end of the 1920s, no foreign *casas comerciales* operated in Arequipa (Jacobsen, 1993).



At the dawn of the 1930s, Michell became the first casa comercial to specialize in fibre trade and to diversify export markets, mainly to the US. Vigorous international demand continued throughout the 1950s prompting the emergence of two new fibre casas comerciales, Incatops and PROSUR. Under semi-formal market rules these casas comerciales established close ties with grandes acopiadores in Juliaca to organize competing middlemen networks. Consumer sophistication during the 1960s promoted by French and Italian fashion firms translated into higher international quality requirements forcing casas comerciales to separately elaborate private standards based on fibre colour, width and breed. In addition, fibre shearing and trade became seasonal rather than year-round activities concentrated during October and March-April to allow adequate fibre length for industrial transformation. Alongside these developments, an informal tui-adulto (T-A) standard was diffused and enforced by middlemen on small-scale producers. A premium was paid for fibre from alpacas younger than two years known as tuis but for both fibre categories volume-based purchases known as compra al barrer or “sweep purchases” applied. With industrial growth during the 1960s and 1970s casas comerciales transitioned into Large Textile Industries (LTIs).

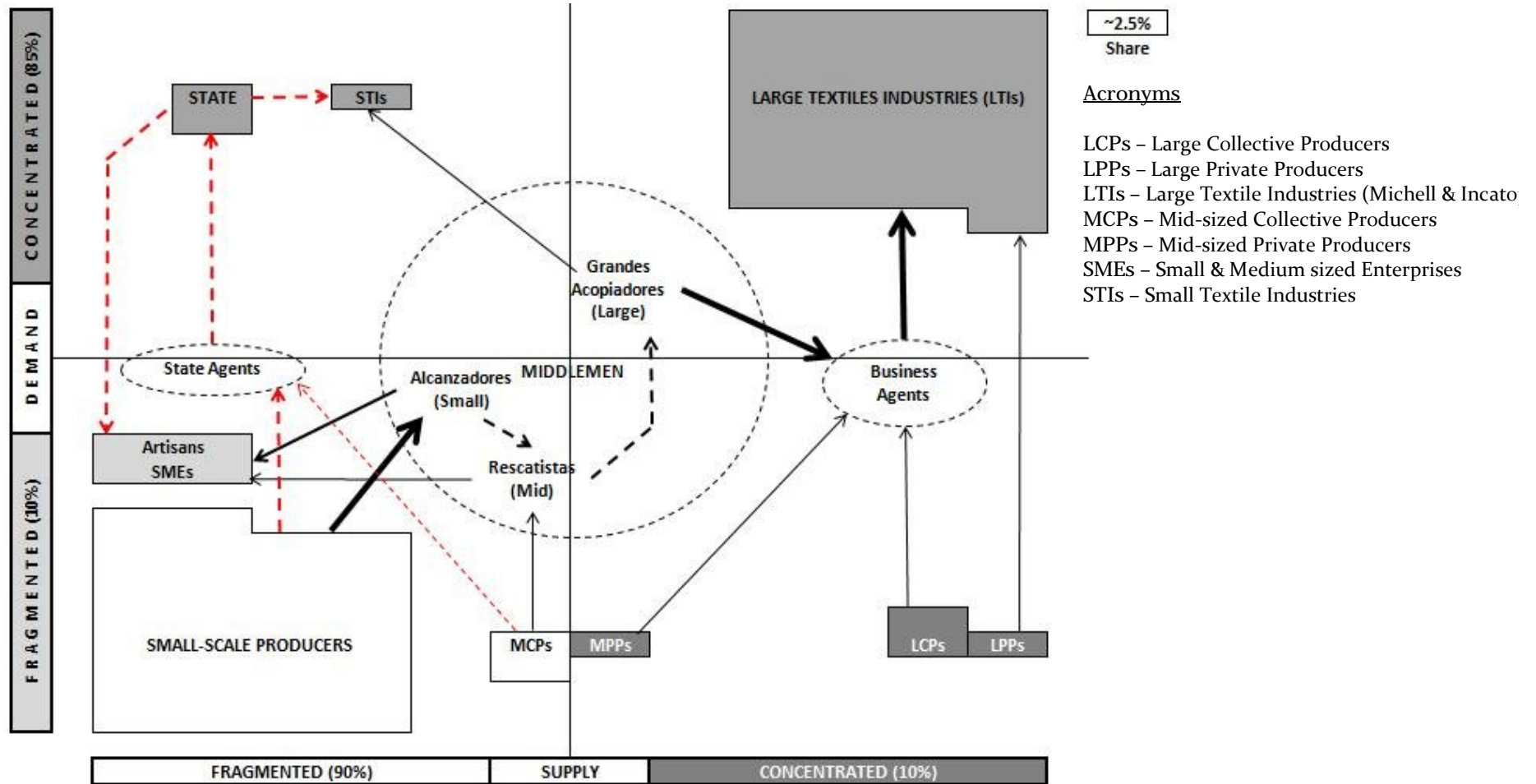
Between the 1970s and 1980s the fibre industry was geographically and functionally disrupted due to an ill-implemented Agrarian Reform and widespread terrorist violence. At the brink of national systemic collapse, in 1990 the Peruvian government turned from state-led development to free market policies alongside the implementation of a national pacification program. Government efforts succeeded and gradual reconstruction of the fibre chain and its ramifications was actively supported by chain facilitators such as the National Council for South American Camelids<sup>53</sup> and NGOs which provided technical assistance and training for small-scale producers, artisans and textile SMEs. By the mid-1990s, a highly fragmented, informal and uncoordinated chain dominated by LTIs had re-emerged.

A non-linear representation of the chain’s structure, actors and their linkages before formal introduction of the PTN in 2002 is shown in Figure 9.

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<sup>53</sup> Since its creation in 1992 until its deactivation in 2007, CONACS was the first state agency specialized in policy design and implementation for the alpaca fibre and meat sectors.

Figure 9. Segmented structure of the alpaca fibre chain before 2002



Source: Own elaboration

Middlemen networks operate throughout all quarters of the fibre chain and are controlled by the visible hand of LTIs. What glues the network together is a scaled funding system known as *habilitacion* in which business agents from LTIs fund *grandes acopiadores* who in turn fund mid-sized middlemen or *rescatistas* who in turn fund small-sized middlemen or *alcanzadores* who in turn purchase fibre from approximately 160,000 small-scale producers (de los Rios, 2010). Middlemen capture rents through commissions tied to collected volumes and by transferring transaction costs to fibre suppliers. *Alcanzadores* are the single link between fragmented suppliers and the rest of chain. Riding donkeys, horses or motorcycles they visit hundreds of isolated peasant communities to purchase fibre. Although barter for basic goods is still practiced, sweep purchase under T-A standard conditions is the most common form of exchange. Volumes of less than five quintales are sold per producer each shearing season and payments are in cash per pound of fibre. Although small-scale producers are subject to transactional conditions imposed by *alcanzadores*, personal relationships known as *compadrazgo* must first be developed among them. Trade is only conducted between *compadres* irrespective of prices offered by competing *alcanzadores* as securing future sales/purchases through proven loyalties is of utmost importance.

Fibre collected from small suppliers is then transported by *alcanzadores* to local and provincial capitals where *rescatistas* operate. The latter impose the same transactional conditions on Mid-Sized Collective Producers (MCPs) managed by peasant communities which own herds between 200 and 799 alpacas. Volumes traded range from 10 to 35 quintales per season and economic exchange is conducted at weekly local and provincial fairs. According to regional agrarian officers and LTI representatives' estimates until 2004 fragmented suppliers were responsible for 90% of total domestic output. On the other hand, fragmented buyers represented by thousands of artisans and textile SMEs<sup>54</sup> purchase 10% of total supply directly from *alcanzadores* or *rescatistas*. Informal market interactions dominated by middlemen configure a captive-relational governance mode at the Fragmented Supply-Fragmented Demand (FF) quarter (see Figure 9). *Grandes acopiadores* headquartered in Juliaca collect 90% of national supply from *rescatistas*. They establish semi-formal arrangements with business agents from LTIs who sweep purchase under T-A standard conditions. Although nearly 80% of fibre is sold by *grandes acopiadores* to LTIs around 5% is smuggled to Bolivia (Brenes et al, 2001). Once fibre

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<sup>54</sup> The Ministry of Foreign Trade and Tourism estimates that 100,000 artisans are involved in the Peruvian textile industry with less than 25,000 formally registered as SMEs. Although no figures are available for the fibre industry, the same source estimates that 77% of artisans are engaged in subsistence economies MINCETUR (2001).

reaches industrial plants, it is manually and visually classified under private standards by highly-skilled women known as *maestras clasificadoras*.

In contrast to fragmented suppliers, large scale and Mid-sized Private Producers (MPPs) apply modern animal production and management techniques<sup>55</sup>. Two types of large scale producers operate in the CF quarter of the chain: (i) Large Collective Producers (LCPs), and; (ii) Large Private Producers (LPPs). The first correspond to collectivist peasant organizations founded after the Agrarian Reform in 1969 and are responsible for less than 5% of total supply (Brenes et al, 2011). The three most important large collective producers, Rural Alianza, SAIS Pachacutec and SAIS Tupac Amaru, produce and trade between 250 and 2,000 quintales per season. Given larger volumes, large collective producers are able to bypass middlemen and sell directly to business agents. A flat price - usually 20-30% higher than prices paid to fragmented suppliers - is agreed before each season under T-A standard conditions. The price differential roughly equates to transactional costs transferred by middlemen to small-scale producers. In case of mid-sized private producers higher quality of yields allows them to engage directly with business agents under the same conditions of large collective producers. Personal relations are also critical given traded volumes and superior quality of yields. Nonetheless, large collective producers and mid-sized private ones remain price-accepting organizations, thus configuring a relational captive governance enforced by business agents at the CF quarter. Relations precede captivity because during periods of high international demand concentrated suppliers can trade their produce with competing business agents willing to pay more.

Large Private Producers (LPPs) are represented by the farms Pacamarca and Mallkini based in Puno. Founded in the early 1990s by Incatops and Michell respectively, these farms apply modern animal reproduction techniques such as embryo transfers and in vitro fertilization to improve the national genetic pool<sup>56</sup>. Size of herds vary between 2,000 and 2,500 animals but average fibre output per season stands at 5.4kg per animal compared to 1.6-2.5kg from the rest of suppliers (Brenes et al, 2001). In contrast to de facto vertical integration of suppliers into LTIs, large private producers are formally integrated into them. Private control of the chain by LTIs through business agents

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<sup>55</sup> These include mechanical rather than manual shearing, feedstuffs, veterinary care, use of registries for animal production, controlled mating and adequate infrastructure.

<sup>56</sup> According to Bustinza (2001) more than 50% of Peruvian fibre produced until the late 1990s had widths over 27 microns ( $\mu$ ) but qualities over 25.5 $\mu$  are not suitable for industrial processing.

configures a quasi-hierarchical governance mode at the CC quarter underpinned by fixed prices and enforcement of the T-A standard.

#### 4.4.1. State interventionism and resilient fibre chain governance: the 1997-1999 MITINCI standardization program

During the second half of the 1990s, a series of international financial crises beginning with the 1994-1995 Mexican crisis<sup>57</sup> led to contraction of exports forcing LTIs to reduce domestic purchases. Incapacity of fragmented suppliers to exit the chain triggered state interventionism through a program of direct purchases implemented between 1997 and 1999 alongside the introduction of quality standards developed by the Ministry of Industry (MITINCI). Collected fibre was then cheaply sourced to fragmented buyers, a handful Small Textile Industries (STIs) clustered in Arequipa and textile firms in Lima to manufacture uniforms for the public sector. Before MITINCI standardization, interactions at the FC quarter were limited to close ties and marginal exchange between grandes acopiadores and small textile industries (see Figure 9). Production of low-quality intermediate goods and lack of access of these industries to international markets posed no commercial threats to LTIs.

The aims of the MITINCI program were to: (i) break captivity of the peasantry from middlemen networks by replacing sweep purchases based on T-A standards with spot-price transactions based on the new standard; (ii) foster quality-driven production through price incentives based on five fibre categories; (iii) concentrate supply and promote formation of market-oriented peasant organizations to increase bargaining power; and (iv) promote industrial development through SME and small textile industry replication. Actions were targeted at the FF quarter of the chain (see Figure 9). A total of 42 fibre collection centres were created nationwide and managed by a network of state agents. These were also responsible for MITINCI standard diffusion through in situ workshops and technical assistance with support from local radio stations and word of mouth. After few months of program implementation, state prices were 110% higher than

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<sup>57</sup> The Mexican crisis was followed by the 1997 Asian financial crisis, 1998 Russian financial crisis and 1998-1999 Brazilian currency crisis. During this period exports of alpaca fibre garments decreased from US\$16.5 million in 1994 to US\$14.4 million the following year reaching US\$16 million in 1999 (MINCETUR, 2012).

those offered by middlemen<sup>58</sup>. Price became the sole incentive for adoption through relative advantage and observability. Although LTIs raised prices by 40% they were unable to compete with state subsidies (Torres et al, 2011).

Due to price distortions and in spite of a marked decrease in exports total national output increased from 2,775 metric tons in 1995 to 3,448 in 1998 (MINAG, 2012). Artificial prices could not be maintained forcing closure of collection centres in 1999 and ending the MITINCI standardization process. The captive relational mode at the FF quarter resumed unchanged but higher concentration of demand was now visible at the FC quarter with approximately 30 small textile industries manufacturing almost 5% of total fibre industrial output<sup>59</sup>. State subsidies offered temporal relief to a small number of fragmented producers – less than 5% of national supply was absorbed by MITINCI during program's peak - but were not accompanied by measures aimed to correct structural problems (e.g. illiteracy, limited infrastructure). These producers regressed to captivity by middlemen networks although collection centres helped expand fibre networks to the central Andean region.

#### 4.4.2. Standardization under the PTN (2002-2013)

After failed state interventionism the fibre chain remained under private regulation of LTIs although the pressing problem of quality continued undermining international competitiveness. Rather than risking a new episode of state competition, in 2001 Incatops proposed to the state's National Council of South American Camelids the creation of the Peruvian Institute of Alpacas and Camelids (IPAC)<sup>60</sup>, a public-private organization responsible for market coordination, technical assistance and quality

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<sup>58</sup> Prices paid per pound of white Suri fibre – the most valued in the Peruvian market – reached s/.16-20 (US\$6-7.5) at state collection centres during the 1997-1998 season while alcazadores paid peasants s/.4-6 (US\$1.5-2.2) per pound of adulto fibre during the 1995-1996 season.

<sup>59</sup> Until June 2011, the combined share of Michell, PROSUR and Incatops corresponded to nearly 90% of Peru's total fibre exports, thus configuring an oligopsonic and oligopolic market. Individual shares of these LTIs stood at of 55%, 23% and 11% respectively (Fairfield, 2006). For example, among Incatops clients are well known international firms such as Lacoste, Hugo Boss, Saks, Nordstrom and Talbocks (Yamada and Chacaltana, 2007).

<sup>60</sup> The creation of IPAC counted with the participation of Michell and PROSUR, state agencies such as the Ministry of Agriculture (MINAG) and the newly formed Ministry of Production (PRODUCE, former MITINCI). Universities were represented by the National Agrarian University, civil society organizations by the Commission for the Promotion of Exports (PROMPEX) and DESCO and producers organizations by the Central Alpaca Cooperatives of Puno (CECOALP) and the Peruvian Society of Alpaca and Llama Breeders (SPAR). In 2003 IPAC was formally accredited as a national technological innovation centre – CITE Camelidos - for the alpaca fibre sector by the Ministry of Production.

promotion. The National System for Collection and Commercialization of Alpaca Fibre (SNARF) was launched a year later to organize and concentrate supply through Local Collection Centres (LCCs). A new set of product and process standards was simultaneously developed by national experts from LTIs, National Council of South American Camelids and the National Agrarian University. After nearly two years of fibre categorization and public fibre bids at LCCs the SNARF program was deactivated and the Peruvian government formally approved the Normas Técnicas Peruanas de Fibra de Alpaca or Peruvian Technical Norms (PTNs)<sup>61</sup> in 2002.

The PTN standardization program shared the aims of its MITINCI predecessor but lessons learned between 1997 and 1999 led to the following operational adjustments: (i) diffusion and adoption efforts were to be conducted at all quarters of the chain; (ii) LCCs were to be managed by the peasantry, not the state, and: (iii) fibre prices had to be negotiated among IPAC members before each season, not unilaterally fixed by LTIs or the state. Producers and chain facilitators complain about withdrawal of LTIs from public fibre bids immediately after deactivation of SNARF arguing unwillingness to pay more for PTN categorized fibre<sup>62</sup>. Nevertheless, spearheaded by IPAC, standard diffusion efforts have continued through Regional Agrarian Directions (RADs)<sup>63</sup> and NGOs.

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<sup>61</sup> The Alpaca Fibre Peruvian Technical Norms (INDECOPI, 2004) are public-private and voluntary standards composed of six price-setting norms based on fibre length, diameter, colour and fleece quality proportions for alpaca's huacaya and suri breeds. These norms are: (i) PTN 231.300 - 2004 for fleece categorization; (ii) PTN 231.301 - 2004 for fibre classification; (iii) PTN 231.302 - 2004 for fleece categorization and sampling procedures; (iv) PTN 231.303 - 2004 for fibre median diameter determination through Air-flow Methodology; (v) PTN 231.304 - 2004 for length determination of fibre streaks, and; (vi) PTN 231.305 - 2004 for essay methods to determine fibre moisture content. The last four norms are restricted to laboratory testing methods and have no importance on field.

<sup>62</sup> The PTN 231.300 - 2004 provides definitions for four fibre fleece categories as well as guidelines, requirements and labelling procedures for the categorization process. The norm establishes that fleeces obtained after shearing have to be assessed manually and through observation by qualified maestras clasificadoras to determine their width, length and colour. The four categories are: (i) Extra Fine fleeces with qualities below 23 $\mu$  known as Baby Alpaca; (ii) Fine fibre from 23.1 to 26.5 $\mu$ , (iii) Semi Fine fibre from 26.6 to 29 $\mu$ , and; Thick fibre over 29 $\mu$ .

<sup>63</sup> The Organic Law of Regional Governments No. 27867 was promulgated by the Peruvian government in November 2002 leading to the creation of 25 regional governments. Each government is now responsible for budget management and multi-sectorial policy design and implementation. Public agencies have decentralized units operating in each region. Since implementation of the Law, the regional governments of Puno, Cuzco, Arequipa and Apurimac, Junin and Ayacucho have played an active role in fibre production and trade activities through RADs. Besides PTN diffusion, these decentralized agencies of the Ministry of Agriculture provide technical training and commercial guidance to small-scale producers with support from national and international NGOs.

Average estimates provided by chain facilitators place diffusion rates among small-scale producers at 40-50%. Mechanisms include in situ information and training programs, local newspapers and radio stations, technical workshops in regional and provincial capitals and word of mouth. Diffusion activities are jointly financed by regional governments and international cooperation agencies. Adoption rates among small-scale producers organized in LCCs are estimated at 10-20% with premium prices for categorized fibre as main incentive for standard adoption. Adoption mechanisms identified by chain facilitators are relative advantage and trialability. All small-scale producers adopting the PTN now concentrate and trade their fibre at LCCs.

Diffusion and adoption have been actively discouraged by middlemen who see their profits sliced by PTN-based transactions. Nevertheless, through payments in cash *alcanzadores* and *rescatistas* provide a sense of security to producers while stressing trade commitments and loyalties through *compadrazgo*. Their role is facilitated by structural problems underlying supply fragmentation which avoid virtuous network externalities for standard diffusion. Small producers capable of dealing with codified information are subordinated to middlemen who enforce T-A standards. Moreover, switching costs of PTN adoption such as fibre transportation, packaging and labelling are prohibitive for fragmented suppliers who remain under captive-relational governance at the FF quarter (see Figure 10).

Among mid-sized private and large collective producers diffusion rates are estimated at 80-90% and 100% respectively. Chain facilitators have restricted PTN diffusion mechanisms at FC quarter to in situ information programs and technical workshops in provincial and regional capitals. Adoption rates among mid-sized collective producers are estimated at 30-40% and mechanisms identified by facilitators are relative advantage (better prices), trialability (benefits from PTN adoption tested) and observability (PTN adoption experience from peers). Mid-sized collective producers who have adopted the PTN now concentrate and trade fibre at LCCs alongside small-scale producers. Rates of PTN adoption among private farms, large collective and mid-sized private producers are marginal as LTIs have enforced semi-formal contractual arrangements without disclosure of details<sup>64</sup>. Thus, governance modes at CF and CC quarters remain static

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<sup>64</sup> Through a large collective producer in the province of Lampa, Puno I informally learned that LCPs were paid a flat price of s/.8 soles (US\$2.8) per pound of fibre for the October-April 2012-2013 season, compared to US\$2.4-2.8 paid for tui fibre and US\$2.0-2.4 for adult one under T-A standard conditions. During the same season, prices at LCCs for categorized fibre ranged from US\$2.8 to 3.2 for Extra Fine and US\$1.6-2 for Thick fibre.

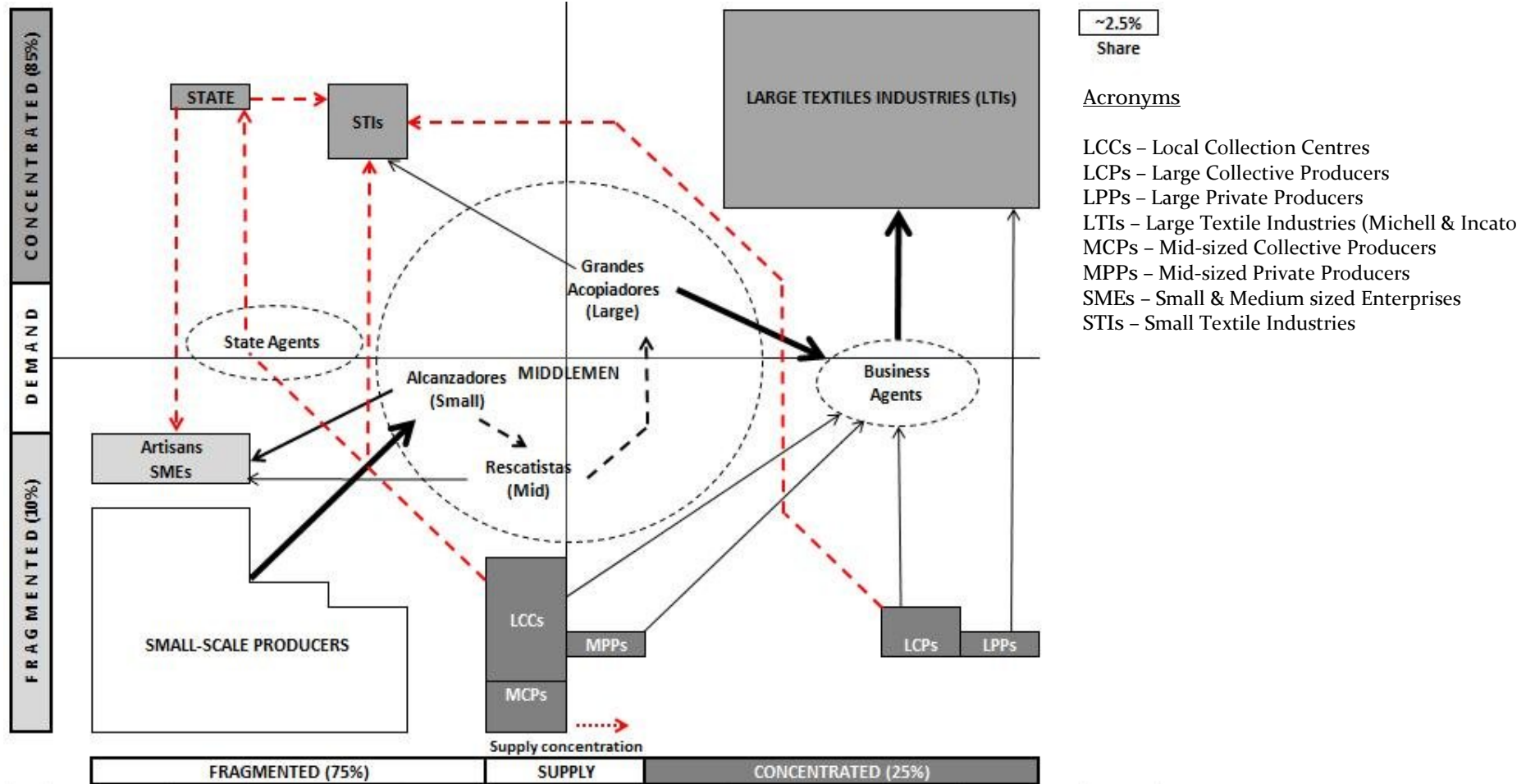


given no substantial change in micro and meso-level interactions among buyers and suppliers throughout the first and second standardization processes.

As Figure 10 shows, the most significant changes brought by PTN standardization are: (i) emergence and consolidation of LCCs; (ii) concentration of supply from 10% to 25% of the national total, and; (iii) vertical integration of LCCs with small textile industries. Local Collection Centres are entirely managed by peasant cooperatives and allow concentration and organization of supply. Their success can be partially measured in terms of LCC replicability; according to regional agrarian officers, in 2009 there were 48 LCCs operating in Arequipa and Puno but on October 2012 these increased to 56. For the 2012-2013 season LCCs were estimated at over 80 nationwide but replication may be credit rather than PTN-driven, thus posing a threat to LCCs sustainability in the event public funding becomes unavailable.

Premium prices for categorized fibre are the main incentive for PTN adoption and larger volumes enable organized suppliers to bypass middlemen. Organization of fragmented producers alongside fibre concentration –estimates provided by regional agrarian officers in Arequipa and Puno place LCCs current supply at 10% of national total - has been actively supported by chain facilitators through promotion of close ties and commercial alliances with small textile industries. These firms are now capable of absorbing LCC supply through recent access to international markets also supported by chain facilitators. Product upgrading has followed by small but growing exports of final goods to Italian and Swiss customers. Some large collective producers have sub-contracted small textile industry manufacturing services to export tops and yarns to Bolivian and Chilean markets but these interactions are still marginal.

Figure 10. Segmented structure of the alpaca fibre chain after 2002



Source: Own elaboration

Registration and formalization of LCCs are pre-conditions set by chain facilitators to access training in areas such as reproduction management and fibre shearing techniques (manual and mechanical). Through product, process and organizational upgrading small-scale fibre producers increase quality and output and gain bargaining power to enforce PTN-based transactions. Moreover, suppliers share rents generated by sales of small textile industries in national and international markets. Transactions between LCCs and business agents have been less promising as the latter tend to apply “reclassification fees” on purchased produce arguing that fibre categorization procedures at LCCs are “unreliable”. Nevertheless, for the first time in fibre chain history, vertical integration with small textile industries has allowed bottom-end actors to engage directly with manufacturers without absorbing transaction costs from middlemen. Yet, PTN prices are still determined by LTIs, therefore configuring a relational proto-market governance mode at the FC quarter.

Until the 2008 Global Financial Crisis, PTN standardization had achieved success in modifying fibre chain dynamics. Former vertical relations of suppliers with LTIs had been partially replaced by voluntary vertical relations with small textile industries as well as horizontal mobility from FF to CF quarter through LCCs. These results were achieved without state interventionism and in spite of LTIs punitive practices such as reclassification fees. However, domestic prices plunged 50-70% during the 2008-2009 season as a result of the Global Financial Crisis. The state responded with direct purchases of fibre from peasants and LCCs, manufacturing subcontracts for artisans and SMEs and establishment of a US\$9.5 million emergency fund managed by the national agrarian bank Agrobanco to fund purchases. Concentration of demand for fibre by the state brought changes into FC quarter linkages as shown in Figure 10. However, unlike the 1997-1999 MITINCI process state subsidies were replaced by public credit, thus assigning financial responsibilities to fibre suppliers.

Registration, membership and formalization of LCCs became non-negotiable conditions for small-scale suppliers and mid-sized collective producers for accessing credit. In addition, state purchases were strictly conducted under PTN terms and credit caps were established based on valuation of LCCs supply potential. Recovery of the Peruvian fibre industry began in 2011 with renewed international demand but artificial dependency of LCCs on public credit was exposed as PTN-driven replication of LCCs was being gradually replaced by credit-driven replication from Agrobanco. Corruption and mismanagement of LCCs related to public funding as well as late and incomplete

payments to members are limiting progress done under PTN standardization. Middlemen networks have seized the opportunity by approaching disappointed LCC members while providing full payment in cash for purchased fibre. In this regard, securing income – even under unfavourable T-A standard conditions – stands as the main priority for small-scale producers. Nevertheless, it is still too early to predict whether LCCs will further regress signalling the failure of PTN standardization or recover the path followed between 2004 and 2008.

#### 4.5. Discussion

##### 4.5.1. Stakeholders' interests in response to standardization

Common agreement exists among stakeholders on the need for fibre industry standardization. Specific interests in support of this process range from higher incomes for fibre producers to competitive exports for LTIs to opportunities for political advancement for regional governments. However, attendance to group meetings in Arequipa and Puno exposed the underlying and often conflicting interests among stakeholders. Power-setting prices by LTIs is routinely and loudly denounced by small-scale producers and chain facilitators as an unfair practice for which the industrialists' unequivocal response is dependency on international demand. Tensions between suppliers and buyers when touching the subject were evident during group meetings, particularly in Arequipa, but ended with prices unilaterally imposed by LTIs for the 2012-2013 trade season.

Understanding dynamics of segmented governance in the fibre chain requires understanding the conflicting interests underpinning micro and meso-interactions among actors. LTIs are unanimously perceived by producers, regional agrarian officers and NGO representatives as “exploitative” and “greedy” firms solely concerned with rent capture. On the other hand LTIs perceive fragmented suppliers as “unreliable” and easily manipulated by “incompetent”, “corrupt” and “obstructionist” regional governments. Michell and Incatops argue that regional governments actively discourage private enterprise and that these use them as political scapegoats for misfortunes suffered by fibre producers. In this regard, NGOs recognize that sometimes fibre production and trade, especially in the southern regions, are activities purposefully politicized by “opportunistic” regional governments, especially in Puno.

Given their informal and competitive environment, middlemen tend to mistrust network outsiders and are reluctant to share information. Yet, based on responses from NGO representatives and one mid-sized middleman, *alcazadores* and *rescatistas* are not sympathetic towards LTIs but acknowledge their dependence on them. Middlemen are active disablers of PTN diffusion as economic exchange based on this standard avoids transferring transaction costs to small-scale producers. However, if rents were appropriated by *alcazadores* and *rescatistas* under PTN conditions, LTIs would simply reduce funding for *habilitacion*, thus transferring costs to them. Moreover, given their large numbers, *grandes acopiadores* controlled by LTIs could easily replace those exiting their networks. Through T-A standards enforcement middlemen capture rents by paying lower prices to small-scale producers and by collecting larger volumes tied to financial incentives from LTIs. Withdrawal of these large industries from PTN-based transactions in 2004 rested on their confidence to keep control of the supply base without compromising collected volumes. Faced with the trade-off between upgrading fibre quality and retaining chain control they seem to lean towards the latter. Confidence in keeping control is backed by *Michell* and *Incatops*' duopolic/duopsonic position and the unmatched logistic and relational capabilities of their middlemen networks and business agents. However, pressing international demand on quality since the mid-2000s has forced LTI business agents to purchase directly from LCCs, thus somehow testing absolute private chain governance.

Fragmented producers also tend to be distant to outsiders mainly due to geographical isolation. Very few know the path followed by their produce after sales and close ties are restricted to *alcazadores*. Given their precarious livelihoods, securing subsistence incomes is their single concern and the reason for accepting unfavourable transactional conditions of middlemen<sup>65</sup>. Middlemen reinforce dependency through barter for basic goods and payments in cash. For small suppliers aware of PTN standards, individual adoption without LCC membership is almost impossible as breaking *compadrazgo* relationships means risking the meagre but secure income provided by *alcazadores*. Moreover, small outputs of poor quality do not satisfy economies of scale and standard adoption costs are prohibitive due to associated costs of fibre transportation, labelling and packaging. For the many peasants settled above 4000 masl poor soil conditions impede engagement in alternative agricultural activities. Without access to upgrading opportunities, downgrading is the norm while chain exit leads to starvation. These

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<sup>65</sup> Annual income from fibre trade for small-scale producer ranges between US\$345 and US\$800 (de los Rios, 2010).

underlying conditions explain complete dependency on *alcanzadores* and difficulties of breaking captive-relational governance at FF quarter. On the other hand, large collective producers remain under relational captivity of LTIs given that small textile industries are unable to absorb their supply.

From a public sector perspective, the creation of the National Council of South American Camelids and implementation of the MITINCI standardization program during the 1990s were the last major initiatives of Peru's central government in the fibre chain. Following national geopolitical reorganization with the creation of regional governments in 2002, Regional Agrarian Directions assumed responsibility for alpaca related activities as the central government lost interest given its marginal importance to the national economy. With regular support from NGOs, these regional agencies have actively promoted PTN standardization. Standard diffusion and adoption efforts are complemented by in situ technical assistance and training for vulnerable fibre producers. In opinion of LTI representatives, active engagement of regional governments is motivated mainly by political ambitions as votes from grateful peasants help them secure local power networks. Although collaboration with NGOs is frequent, inter-regional coordination is almost inexistent. For NGOs, securing funds from international donors and cooperation agencies is the main incentive for engaging in standardization.

While the role of chain facilitators is generally appreciated by fibre producers which consider them "allies", IPAC is perceived as serving LTI interests given full financial dependence on *Michell* and *Incatops*. With three staff members based in Arequipa, IPAC operates with limited budget and equipment which undermines logistic capabilities for fibre market coordination. However, genuine commitment was observed from staff members to support standardization. For instance, since 2004 IPAC has annually organized two PTN induction programs in Arequipa for 200 attendees and 14 PTN technical internships for 25 small-scale producers. Limited technical assistance on animal reproduction in Arequipa, Cusco and Puno regions has also been provided through its technological innovation centre CITE-Camelidos. Yet, these minor interventions through IPAC seem as an attempt to reverse – at least partially – the negative reputation of LTIs among non-industry stakeholders of the fibre chain.

#### 4.5.2. Segmented governance modes and dynamics before and after formal introduction of the PTN

Standardization efforts displayed in the fibre chain since 1997 have been implemented with two common purposes in mind: (i) to increase quality of raw produce in response to increased competition from substitute fine fibres, and; (ii) to configure an overall market governance mode based on spot-price transactions. Interview respondents unanimously agree that PTN standardization has partially achieved the first objective - according to LTI and regional agrarian representatives, fibre quality proportions below  $23\mu$  have increased from 10% to 20-25% of total supply since 2002 - but completion of the second aim remains distant. Although foreign demand largely determines domestic fibre prices configuring buyer-driven governance of the fibre chain, I find that different and context-specific segmented governance modes co-exist when zooming into the chain (see Figure 11).

Fibre chain interactions are not only configured by position of actors in input-output structures but also by the geographical and institutional contexts in which they are embedded. For instance, both fragmented and concentrated suppliers perform the same functions - production and shearing - but the former do so in geographically isolated and informal environments while the latter are better interconnected to fibre circuits and engage in semi-formal arrangements with business agents. In this regard, context-specificity and degree of supply-demand concentration-fragmentation expose operational limitations of linear GVCs for the study of chain governance dynamics. An initial contribution from applying the constructivist bi-dimensional framework is the possibility to trace and better explain governance dynamics in segmented modes resulting from standardization.

Examination of the supply-demand framework in Figure 11a shows that targeted interventions of MITINCI standardization at FF quarter were unable to break captive relational governance as state prices could not be maintained. Moreover, state agents lacked operational capabilities of middlemen networks which quickly filled their geo-economic spaces after state exit from the chain in 1999. Under quasi-hierarchical mode, LTIs exercised hands-on and hands-off governance over suppliers, thus consolidating vertical linkages with FF and CF quarters. After failure of MITINCI standardization, segmented chain modes did not change and proved their resilience with the exception of STI replication at the relational FC quarter. Therefore, MITINCI standard adoption was

exclusively price-based as no other benefits or incentives were perceived and/or obtained by small-scale producers.

On the other hand, since 2002 PTN standardization has already induced significant shifts in chain dynamics through stimulation of vertical linkages between LCCs and small-textile industries (FC quarter) as well as horizontal mobility of small-scale producers from fragmentation to concentration of supply at LCCs (FF → FC quarter) (see Figure 11b). Creation of LCCs and commercial alliances with small textile industries create a virtuous cycle leading to supply concentration and product and process upgrading. These proto-market interactions strengthen close ties and consolidate spot-price transactions under PTN conditions. Moreover, interactions at the FC quarter continue to resist the gravitational pull exercised by LTIs at CC quarter. However, the expected benefits of tying PTN adoption to public credit remain under question as evidenced by increased corruption and mismanagement of LCCs post-2008 Global Financial Crisis. This dependency which has fed corrupt management could eventually break the 2004-2008 virtuous cycle of PTN standardization and lead to pre-2002 conditions. On the other hand, proliferation of linkages between large collective producers and small textile industries could also increase domestic competitive pressures on LTIs if their smaller industrial peers consolidate access to international markets and foster product upgrading.

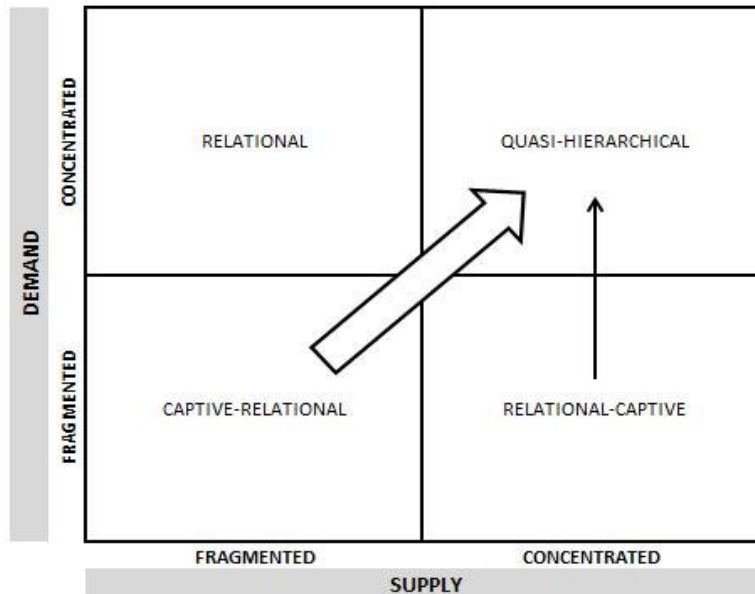
Middlemen networks are a formidable barrier for standards diffusion and play a crucial role in consolidating captive relational governance at FF quarter. Yet, without middlemen no chain articulation would be possible and limits to PTN standardization would be set by structural problems – difficult geography and shortage of transportation infrastructure - transversal to the Peruvian economy. In this regard, overall changes in chain dynamics and evolving governance at FC quarter are remarkable achievements considering the short period of PTN standardization. In contrast to the threat of further chain exclusion for Vietnamese shrimp farmers posed by international food safety standards (Tran et al, 2013), a growing number of fibre producers are benefiting from PTN adoption in spite of unsustainable credit-driven LCC replication. A similar contrasting situation can be established with Indonesian coffee farmers for whom multiple international normalization initiatives are consolidating an overall quasi-hierarchical governance mode (Neilson, 2008).



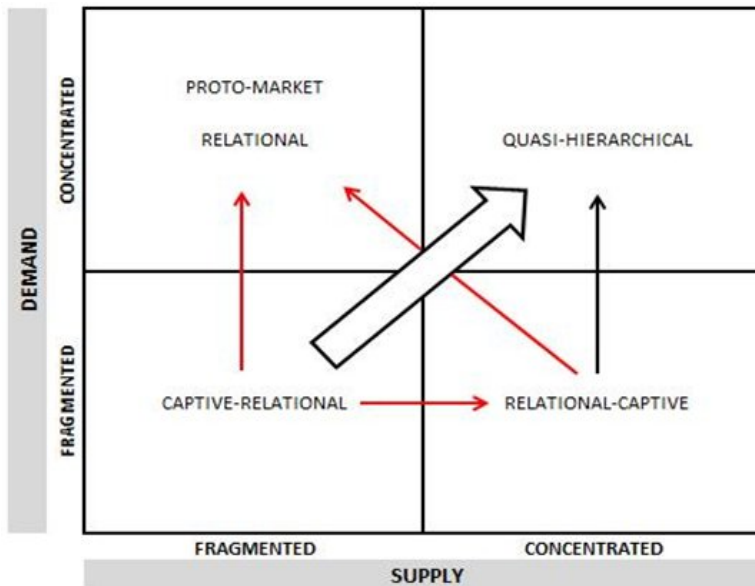
Chain dynamics and segmented governance modes expressed in Figures 11a and 11b show that although multiple governance modes co-exist in the fibre chain these do not necessarily co-evolve in response to standardization. These findings empirically support Ponte and Gibbon's (2005: 3) observation that "a GVC may be characterized by different forms of coordination yet a single and relatively coherent mode of overall governance"

Figure 11. Segmented governance modes and dynamics before and after formal introduction of the PTN standardization

11a. Pre-PTN standardization



11b. On-going PTN standardization (2002-2013)



Source: Own elaboration

However, this is a static view of governance. Fibre chain dynamics and segmented governance modes may change incrementally without altering overall governance but incremental change today may lead to major change tomorrow. By focusing attention on macro governance, interactions at the micro and meso levels are ignored. Moreover, while changes in chain segments may seem irrelevant from a firm's perspective due to marginal transactions, these changes can have a great impact on individual welfare. For a small-scale producer who avoids transaction costs, earning an additional US\$1-1.5 per pound of fibre does make a difference.

#### 4.5.3. Operational attributes of the bi-dimensional framework

The bi-dimensional framework proposed in this paper is an improvement from the linear GVC input-output framework for the study of segmented governance dynamics in commodity chains. First, through its application we are able to better resemble and represent the structural configuration of many commodity chains in developing countries. These chains usually fit into buyer-driven typologies (Gereffi, 1999) or quasi-hierarchical (Humphrey and Schmitz, 2001; 2002) or hierarchical and captive (Gereffi et al, 2005) modes. The resulting quarters or segments of the framework constitute four "sub-governance" modes within the same chain although each segment represents a specific governance mode. Each segment also encapsulates context-specific actors and institutions as well as micro and meso market and non-market interactions among them.

Given dominance exercised by international lead firms on chain governance - as findings from different case studies confirm (Dolan and Humphrey, 2000; Konefal et al, 2005; Neilson, 2008) - overall global-to-local governance typologies such as buyer-driven ones do not only blur functional chain particularities as noted by Humphrey and Schmitz (2002) but also obscure analysis of national-to-local governance modes and dynamics. A useful analogy is provided by thinking of chain governance as facing against lights of different colours and intensities. Overall governance modes correspond to the most intense lights which impede us from perceiving weaker but differently coloured ones. In highly fragmented, uncoordinated and informal chains such as the fibre chain different governance modes co-exist in different segments of the chain in spite of more intense (or dominant) "buyer-driven" or "quasi-hierarchical" lights. The bi-dimensional framework, in contrast to the linear GVC framework, allows us to lower intensity of the dominant light and explore the weaker ones - the micro and meso interactions among segment-embedded actors - emanating from each quarter.

By zooming into the fibre chain, dominant LTIs located at the CC quarter configure a quasi-hierarchical governance mode which projects its powerful light over the entire chain. From this quarter, gravitational pull is also exercised by dominant LTIs over the rest of domestic chain actors configuring vertical (diagonal) linkages of the fibre chain (see Figure 11). Standards introduced in 1997-1999 and 2002 are exogenous instruments of change unleashing a standardization process which affects segment-specific interactions with different intensity and direction. Where no changes in micro and meso interactions occur standardization fails to endogenize (e.g. no appropriation of standards through adoption). This explains static governance after MITINCI standardization where adoption ceased immediately after artificial prices offered by the state were discontinued (see Figure 11a). However, when standardization endogenizes, changes at micro and meso levels occur. This has been the case of the PTN, which has led to governance shifts at the FC quarter (proto-market relational mode) (see Figure 11b). In contrast to MITINCI standardization, access to international markets through vertical integration with small-textile industries and higher prices without intervention of middlemen resulted in (proto)market-driven LCC replication between 2004 and 2008. However, credit-driven LCC replication post-2008 Global Financial Crisis may stand as unwanted endogenization given the risks posed by LCC corruption and mismanagement to sustainable standardization.

Governance modes are not neatly separated but can overlap within a chain segment as in FF and CF quarters. As PTN standardization aspires to overall market governance, segmented governance shifts moving towards that mode are said to evolve. However, co-existence does not mean co-evolution of segmented governance modes as the fibre chain shows where only the FC quarter evolves. Through linear GVC frameworks, researchers can trace upward-downward linkages and mobility in vertical chain interactions but not in horizontal ones. This is an additional attribute of the bi-dimensional framework. While endogenization of standardization is clearly observed at FC quarter, organization and concentration of supply through LCCs leads to horizontal mobility of small-scale producers (FF → CF pattern). However, while staying at the same functional stage, organized suppliers are exposed to novel interactions such as vertical integration between large collective producers and small textile industries configuring new governance modes. These empirically supported interactions express dynamic patterns of governance where horizontal mobility of organized small-scale suppliers is closely related to vertical integration (FF → CF → FC pattern). Moreover, although vertical linkages between large collective producers and small textile industries are still weak

they expose a new flow in chain dynamics (CF → FC pattern) where a tenuous gravitational pull is exercised by small textile industries. Although this new linkage does not stem from standardization per se, it represents a positive externality of standardization. Far from static and generic, the bi-dimensional framework helps us identify, describe and explain context-specific interactions as well as overall chain governance modes and dynamics.

Lastly, another important operational aspect of the proposed framework relates to how we assess determinants of interactions within and between chain segments. Gereffi et al (2005) identify complexity, codifiability and competency of suppliers as determinants of their five-fold governance typology. However, despite its high analytical value, these market-oriented determinants (and governance modes) do not fully represent the relational nature of informal and socio-culturally situated commodity chains like the fibre chain. A case in point are *compadrazgo* relationships between small-scale producers and *alcanzadores* which are as important as economic interactions. In this regard, the constructivist diffusion and adoption mechanisms (of innovations) elaborated by Rogers (1983) can complement the functional-leaning GVC determinants of governance into the analysis and interpretation of segmented interactions in commodity chains. The sum of these observations raises promising research avenues for segmented governance dynamics in commodity chains in the developing world.

#### 4.6. Conclusions

This paper has applied a bi-dimensional supply-demand framework to describe and explain segmented governance dynamics and modes stemming from standardization in the Peruvian alpaca fibre chain. Standardization efforts aim to achieve overall market governance in this highly fragmented, uncoordinated and asymmetric chain. In contrast to overall buyer-driven governance modes attention has been paid to national institutions and actors ranging from vulnerable small-scale producers to powerful LTIs in Arequipa. These bottom and top-end chain actors are accompanied by a number of suppliers and buyers which according to “degrees of concentration” (Lee et al, 2012) of fibre - conditioned by their geographical position and functional characteristics - engage in context-specific micro and meso market and non-market interactions. A complex network of middlemen through which LTIs exercise hands-off governance articulates the fibre chain across segmented functional and geographical spaces of interaction.

Standardization processes before and after 2002 have been studied to trace, describe and explain segmented governance dynamics and modes in the fibre chain. Failure of the MITINCI standardization process between 1997 and 1999 proved that higher prices alone are insufficient for endogenization of standardization. This failed process also showed the resilience of non-market interactions among actors within and across chain segments leading to static governance modes. However, since 2002 an on-going PTN standardization process is generating structural and governance shifts in specific segments of the chain. Organization of small-scale producers in local collection centres has led to horizontal mobility through concentration of supply and vertical linkages with small textile industries alongside formalization efforts from chain facilitators. Moreover, new vertical linkages between large collective producers and small textile industries express positive externalities of standardization which can be traced through the proposed framework. However, caution is required when assessing long-term sustainability of these outcomes due to threats posed by dependency of local collection centres on public credit and corruption of peasant cooperatives responsible for the management of these centres. In this regard, PTN endogenization expressed by credit-driven centre replication may stand as an unwanted mechanism for sustainable standardization.

Findings show that far from neat and homogenous GVC governance typologies, segmented governance modes under the influence of standardization co-exist but do not co-evolve as standardization unfolds in the fibre chain. In addition, governance modes can overlap within segments of the fibre chain. The bi-dimensional framework allows us to examine context-specific actors and interactions through a balanced functionalist-constructivist analysis of market and non-market governance determinants. In this regard, the bi-dimensional framework is an improvement over linear input-output GVC models because the study of chain dynamics is not restricted to one-size-fits-all typologies. The proposed framework accommodates segmented governance modes while expanding analytical coverage from vertical to horizontal linkages and actors' mobility. Further comparative studies applying the bi-dimensional framework are recommended on commodity chains with similar structures across countries and sectors to advance our understanding on segmented governance dynamics at national-to-local levels.

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## CHAPTER 5 – CONCLUSIONS

Fundamentally underpinned by the generic rationale of inequality, the three papers of this thesis have separately tackled core GVC research concepts, namely distribution of rents and structural change, upgrading and governance. The Peruvian alpaca fibre value chain has served as case study as it resembles the structural and institutional configurations of other commodity-based industries in the developing world. In attention to the complexity and context-specificity of these configurations, theoretical and methodological approaches for each paper have shifted from economics-centred to cross-disciplinary analysis informed by political economy, history, economic geography as well as standards, development and innovation studies. This development-oriented research approach allows for a more comprehensive understanding of market and non-market processes of change in commodity chains.

### 5.1. Individual paper contributions

Through an exploratory historical case study, Chapter Two has shifted from the traditional GVC analytical focus on governance as market coordination to political and economic competition for rents and subsequent structural change in the alpaca fibre chain. Frequent struggles between commodity suppliers and powerful buyers show that chain interactions are not confined to coordination of market activities. Given that uneven distribution of rents is common, this investigation contends that political conflict prevails over market coordination. In the absence of formal market institutions and the rule of law, non-market interactions condition mobility as well as the geographical and functional position of actors in the chain. These structural shifts influence the degree and direction of power flows configuring commodity chain governance, upgrading opportunities and rent shares among chain stakeholders.

The Embedded Framework resulting from the combination of the structurally resilient GVC framework and the institutionally enriched LAO framework is more comprehensive, flexible and versatile than the GVC framework alone when dealing with political and economic variables underpinning rent competition. From an operational perspective, the limitations of the GVC framework are exposed when leveraging non-market variables into chain analysis which the Embedded Framework can better operationalize. Moreover, a thorough historical perspective is adopted to identify and describe the actors, institutions and interactions among them - both political and

economic - that shape a chain's structure over time. The competitive processes and subsequent structural transformations contained in the historical narrative are codified in the Embedded Framework and the resulting qualitative information is then summarized through descriptive statistics to elaborate four theoretical propositions.

Theoretical Proposition 1 states that political competition is more frequent than market competition for rents in LAO-embedded chains. This proposition stands as a call for GVC scholars to pay more attention to political processes unfolding in commodity chains. In this regard, commodity chains are not isolated economic structures but political, economic and socio-cultural constructs embedded in nation-states. The importance of embeddedness is exposed in Proposition 2 which states that GVC captive-relational modes of governance are prevalent in Basic to Fragile LAO-embedded chains. This proposition relates GVC market governance modes with LAO stages of development. In Proposition 3 political competition is said to decrease as LAO-embedded chains progress from Basic to Mature orders. Finally, Proposition 4 states that political competition has greater impact on functional change in Basic to Fragile LAO-embedded chains. These theoretical propositions place politics and political economy at the core of the GVC research agenda as economics-centred analytical approaches offer incomplete answers to complex commodity chain research enquiries.

Chapter Three contributes to GVC literature by introducing the concept of organizational upgrading stemming from standardization in the fibre chain. Introduction of national product and process standards in 2004 has responded to increased international competition from natural and synthetic fibres. Standard diffusion and adoption efforts displayed by chain facilitators have been targeted at small-scale producers responsible for nearly 85% of total national supply. Among standard adopters representing 10-20% of small-scale producers' population, organization and concentration of supply has been institutionally expressed by Local Collection Centres. Through learning by organizing, these formalized suppliers have increased their bargaining power enabling them to bypass middlemen networks and reduce transaction costs. Larger volumes and better quality of yields have also led to further vertical integration with Small Textile Industries offering small-scale suppliers opportunities for rent capture through indirect engagement in international markets.

Organizational upgrading is based on the principle of trade empowerment through agglomeration of fragmented and vulnerable suppliers. The outcomes of this upgrading

form in highly informal commodity chains – better terms of engagement, higher rents and access to international markets – are not clear under orthodox GVC modes of product, process, functional and inter-sectoral upgrading. These firm and production-oriented upgrading modes theoretically rooted in industrial organization studies are aimed at improving production capabilities mainly in terms of quality and output. However, terms of exchange are conditioned by asymmetric market and non-market relations among suppliers and buyers which improved production capabilities cannot bridge alone when the rule of law is absent or weak. Although product and process upgrading are also observed at LCCs they constitute an indirect outcome of standardization but a direct outcome of organizational upgrading.

Organizational upgrading in the form of LCCs has generated positive externalities for fibre support service providers. State-sponsored skills certification programs for shearers and maestras clasificadoras have been implemented in response to demand for their services at LCCs. Organizational upgrading has also been observed among maestras clasificadoras through creation of a service firm which has gradually neutralized fibre reclassification fees imposed by LTIs. However, risk of LCCs to regress from formal and organized supply concentration to hands-off governance by dominant textile industries has increased after the 2008 Global Financial Crisis. Dependency of LCCs on public emergency funding and credit-driven LCC replication may lead to regression from positive captivity by the state to negative captivity by middlemen networks after public funding is exhausted. A second threat to organizational upgrading is posed by internal corruption and mismanagement of LCCs stimulated by public credit. Lack of transparency and incomplete/late payments to LCC members have become a powerful disincentive for standardization-driven LCC replication and an opportunity for middlemen networks to recapture disappointed small-scale producers. These mutually reinforcing threats may render organizational upgrading unsustainable.

Through a constructivist approach, Chapter Four has aimed to explain how fibre chain governance dynamics are influenced by standardization. Its main contribution is the supply-demand bi-dimensional framework which resembles the chain's structural configuration and offers the operational means to trace segmented governance dynamics and shifting governance modes within a single commodity chain. The concept of segmented governance is raised in response to generic GVC buyer-driven governance typologies in which the role of international lead firms has been overemphasized. This approach has obscured domestic interactions among nationally embedded actors and



institutions at the micro and meso levels of commodity chains. In addition, the linear GVC input-output framework has restricted analysis to static governance modes and vertical linkages at the expense of horizontal ones, limitations that are overcome by the bi-dimensional framework. This is achieved through disaggregation of the buyer-driven or quasi-hierarchical fibre chain into four segmented governance modes, each based on the degree of fibre supply and demand concentration and fragmentation.

Segmented governance dynamics are assessed under the lens of standardization where specific market and non-market interactions at each quarter of the framework configure and express specific governance modes within the fibre chain. Yet, in contrast to the GVC linear input-output framework, operationalization of the bi-dimensional framework is not analytically restricted to intra but also inter-segment interactions among actors. Given that the standardization process aspires to achieve overall market governance in the fibre chain, segmented governance modes shifting towards spot-price market transactions are said to evolve.

Findings of this investigation suggest that segmented governance modes in the fibre chain co-exist but do not co-evolve as standardization unfolds due to varying intensity and direction of the standardization process in each quarter. Moreover, overlapping governance modes within specific segments of the fibre chain show that GVC governance rarely fits into homogeneous and overall governance types. A final contribution is provided by complementing the functionalist GVC governance determinants of complexity, codifiability and suppliers' competencies with the constructivist determinants of diffusion and adoption of innovations which better express and operationalize the relational and informal nature of the fibre chain.

## 5.2. General contributions

Four transversal issues have been separately raised by the three papers. First, if power asymmetries remain an analytical concern for GVC researchers, contributions from politics and socio-cultural studies can no longer be ignored as their absence leads, at best to incomplete and, at worst to misleading answers and development policy prescriptions. Commodity chains embedded in developing countries are strongly influenced by non-market variables and share highly fragmented supply and concentrated demand structures. Middlemen networks play a crucial role in articulating these poles which instead of constituting market coordination activities express systemic coordination

failure among actors located at nationally embedded chain nodes. Moreover, transit of commodities until pre-export stages usually occurs from informal to formal markets where limited or absent rule of law at the bottom-end diminishes the explanatory power of formal market assumptions. These are common characteristics of highly fragmented, uncoordinated and non-transparent commodity chains across sectors and countries.

Second, although dominance of international buyers is acknowledged, GVC scholars should pay more attention to the role and impact of local-to-national actors and institutions on chain governance dynamics, upgrading opportunities and rent struggles. These key GVC concepts are intimately linked to each other as particular governance modes may increase or limit upgrading opportunities and/or determine uneven rent shares among a complex constellation of asymmetrically powerful actors. Third, more attention should be paid to the ways in which these GVC concepts relate to commodity suppliers rather than firms as the former constitute the largest and most vulnerable bulk of chain actors. Lastly, history stands as an untapped but fertile academic field which can offer GVC scholars novel theoretical and methodological research tools. Through the provision of enriched political, economic and social contexts, rigorous historical perspectives can significantly expand our understanding of contemporary processes of change in commodity chains.

### 5.3. Limitations

In general terms, given the complex cross-disciplinary foundations of this thesis and the exploratory nature of theoretical propositions I explicitly recognize that further research efforts will be required to fully address my research enquiries. Therefore, conclusions stemming from each paper should not be generalized but serve as comparative guidance for future case studies in similarly structured commodity chains. A second limitation refers to restricted availability and low reliability of secondary data and information for the Peruvian alpaca fibre sector. Most information is privately generated, owned and managed by the dominant textile industries which are not eager to share it arguing exposure to domestic competition. On the other hand, information generated by public agencies such as RADs is mainly based on estimates and projections while information from NGOs is usually restricted to specific projects of limited geographical and demographic coverage. Yet, contrasting primary information from the chain's most representative actors partially compensates for this deficiency although respondents' subjectivism may condition its degree of accuracy and/or validity.

In terms of the analytical frameworks presented in Chapters Two and Four, both are at experimental stage and open for improvements, adjustments and operational validation through comparative case studies. Quantitative sophistication is recommended for the Embedded Framework for further theoretical validation or rejection of the five propositions. This is particularly relevant when codifying and assessing the impact of each political and economic competitive process on structural changes in the commodity chain under investigation. Nevertheless, subjective interpretation of secondary history sources can never be completely eliminated. Regarding the supply-demand bi-dimensional framework, applicability is restricted to commodity chains with a similar functional structure of the fibre chain, namely fragmented and concentrated supply and demand sides.

#### 5.4. Further research

Empirically informed commodity chain studies beyond market coordination concerns and theoretically grounded on political economy, history and innovation studies are recommended on a range of sectors and countries to validate the Embedded Framework and the theoretical propositions informed by historical narratives contained in it. In attention to preliminary relational compatibility between GVC governance modes and LAO progressions/regressions, research efforts are also suggested on coupled chain governance linking endogenous (GVC) chain governance to exogenous (LAO) nation-state stages of maturity. Based on the conceptual contributions of Chapter Three, comparative studies on organizational upgrading stemming or not from standardization are recommended in terms of modes of association, sustainability, results, externalities and institutional configurations leading to development of organizational upgrading typologies/modes. Lastly, comparative studies using the bi-dimensional framework are encouraged for a broader understanding of governance dynamics and modes of commodity chains given the framework's capacity to deal with horizontal mobility and linkages.

## APPENDIX 1 – PARTICIPANTS FORMS

English version

The University  
of Manchester

MANCHESTER  
1824

THREE ESSAYS ON STANDARDS, GOVERNANCE AND STRUCTURAL CHANGE IN  
THE PERUVIAN ALPACA FIBRE VALUE CHAIN

Participant Information Sheet

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

Who will conduct the research?

LUKACS DE PERENY MARTENS VAJK MIKLOS, Manchester Business School

Title of the Research

THREE ESSAYS ON STANDARDS, GOVERNANCE AND STRUCTURAL CHANGE IN  
THE PERUVIAN ALPACA FIBRE VALUE CHAIN

What is the aim of the research?

To have a deeper and better understanding of quality standards diffusion and adoption mechanisms which influence production and trade processes of low technology industries in developing countries

Why have I been chosen?

Because you/your organization are relevant actors and stakeholders of the alpaca fibre national production chain

What would I be asked to do if I took part?

You will be asked to participate in an interview and provide your views and opinions about the mechanisms that influence the diffusion and adoption of quality standards among actors of the alpaca fibre production chain, particularly from the position that your organization occupies in the chain. If applicable, you may be asked to provide some specific data to support your views.

What happens to the data collected?

The data and information kindly provided by you will complement secondary data and information previously collected by the researcher.

Collected primary and secondary data and information will be discriminated and codified for further critical analysis. A report based on gathered data and information will be used to inform and construct the theoretical framework of the research project. In addition, a case study protocol of the Alpaca Fibre sector will be developed and applied into the theoretical framework to test its validity. Moreover, the theoretical framework will be reviewed and enriched on the basis of the analytical results and implications identified for the actors involved within the alpaca fibre national production chain

All primary data will be safely stored during the research process and will not be distributed, under any circumstances, to third parties. Only results stemming from the critical analysis will be presented.

How is confidentiality maintained?

All primary and secondary data and information will be exclusively handled by the researcher. This is an individual research project, so no other person will have access to data and information. Whatsoever data used in the project will be stored in and accessed through a password-protected file. Such data and information will not be shared with

anyone under no circumstances; it will only be used to complete the research project described above.

No raw data will be reported. Only processed and elaborated data under critical analysis will be eventually used as output. In addition, no personal/organization names or other form of identification will be used in reporting the results of critical analysis. This analysis will refer exclusively to the specific sector under study, not to individuals and organizations.

In general, all good practice measures requested by participants and the University of Manchester are applicable and will be rigorously implemented throughout the entire research process. All data and information stored will be destroyed and no records will be kept after completion of the research project.

What happens if I do not want to take part or if I change my mind?

If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time without giving a reason and without detriment to yourself.

Will I be paid for participating in the research?

No

What is the duration of the interview?

Individual interviews may last between 45 to 90 minutes.

Where will the interview be conducted?

You are free to set the location and time of interview at your own convenience.

Will the outcomes of the research be published?

It is expected that the research outcomes will be published in a peer-reviewed journal or a similar scientific publication.

Criminal Records Check (if applicable)

N/A

Contact for further information

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E-mail: [miklos.lukacs@postgrad.mbs.ac.uk](mailto:miklos.lukacs@postgrad.mbs.ac.uk)

What if something goes wrong?

Same as above.

If a participant wants to make a formal complaint about the conduct of the research they should contact the Head of the Research Office, Christie Building, University of Manchester, Oxford Road, Manchester, M13 9PL.

Spanish version

MANCHESTER  
1824

The University  
of Manchester

TRES ENSAYOS SOBRE ESTANDARES, GOBERNANZA Y CAMBIO ESTRUCTURAL  
EN LA CADENA DE VALOR PERUANA DE FIBRA DE ALPACA

Hoja informativa para participantes

Se solicita su participación y colaboración en este trabajo de investigación. Antes de decidir su participación es importante que comprenda por qué se está realizando esta investigación y que elementos involucrará. Por favor lea cuidadosamente la siguiente información y discútalas con terceros si así lo desea. Por favor pregunte sobre todos aquellos aspectos en donde aun tiene dudas o si desea solicitar información adicional. Tome su tiempo para decidir si desea participar o no. Gracias por leer este encabezado.

Quién llevará a cabo esta investigación?

LUKACS DE PERENY MARTENS VAJK MIKLOS, Manchester Business School

Título del proyecto de investigación

TRES ENSAYOS SOBRE ESTANDARES, GOBERNANZA Y CAMBIO ESTRUCTURAL EN  
LA CADENA DE VALOR PERUANA DE FIBRA DE ALPACA

Cual es el propósito de esta investigación?

Tener una mayor y mejor comprensión sobre los mecanismos de difusión y adopción de estándares de calidad que influyen en los procesos de producción de industrias de baja tecnología en países en desarrollo

Por qué se solicita su participación?

Porque usted/su organización es un actor relevante en la cadena de producción nacional de fibra de alpaca



Que se espera de usted si decide participar?

Se le pedirá participar en una entrevista para proporcionar sus opiniones y puntos de vista sobre los mecanismos que influyen en la difusión y adopción de estándares de calidad entre los actores de la cadena de producción de fibra de alpaca, particularmente desde la posición que ocupa su organización en dicha cadena. En caso pertinente, se le solicitará respaldar sus opiniones con datos específicos

Que sucede con los datos e información proporcionados y colectados?

La información y datos gentilmente proporcionados por usted servirán para complementar la información y datos secundarios colectados previamente por el investigador

La información y datos primarios y secundarios colectados serán discriminados y codificados para su posterior análisis crítico. Se elaborará y utilizará un reporte basado en la información y datos colectados para construir el marco teórico del proyecto de investigación. También se elaborará un protocolo de estudio de caso del sector de fibra de alpaca que será posteriormente aplicado al marco teórico para comprobar su validez. Adicionalmente, el marco teórico será revisado y enriquecido sobre la base de los resultados del análisis y de las implicancias que éste análisis tenga sobre cada uno de los actores identificados e involucrados en la cadena de producción nacional de fibra de alpaca

Toda la información y datos primarios serán almacenados de manera segura durante todo el proceso de investigación y no serán distribuidos, bajo ninguna circunstancia, a terceras partes. Solamente los resultados del análisis crítico serán difundidos

Como se mantiene la confidencialidad?

Toda la información y datos primarios y secundarios serán exclusivamente manejados por el investigador. Este es un proyecto de investigación individual por lo que ninguna otra persona tiene acceso a los datos e información. Cualquiera sea la información o datos utilizados en este proyecto, éstos serán almacenados en un lugar seguro y únicamente accesibles mediante un archivo protegido con contraseña. Estos datos e

información no serán compartidos con nadie y bajo ninguna circunstancia; serán utilizados únicamente para completar el proyecto de investigación descrito previamente

Ningún dato o información será reportado sin haber sido procesado. Solo datos e información procesados y sujetos al análisis crítico serán eventualmente utilizados como productos para la investigación. Adicionalmente no se utilizarán nombres personales u organizacionales o cualquier otra forma de identificación al momento de reportar y publicar los resultados del análisis crítico. Este análisis se restringirá específicamente al sector en estudio y no a individuos u organizaciones.

En general, todas las medidas y buenas prácticas solicitadas por los participantes y por la Universidad de Manchester son aplicables y serán implementadas rigurosamente durante todo el proceso de investigación. Toda la información y datos almacenados serán destruidos y no se guardarán registros una vez concluido el proyecto de investigación.

Que sucede si no quiero participar o cambio de opinión una vez aceptada mi participación?

Si usted decide participar recibirá esta hoja informativa para sus registros y se le solicitará firmar una hoja de consentimiento. Si usted decide participar pero cambia de opinión tiene la libertad de retirarse en cualquier momento sin necesidad de dar razones y sin perjuicio alguno para usted.

Recibirá algún tipo de remuneración por participar en esta investigación?

No

Cuanto tiempo dura la entrevista?

La entrevista tendrá una duración aproximada de 45-90 minutos

Donde se llevará a cabo la entrevista?

Usted tiene la libertad de elegir el lugar y hora de la entrevista de acuerdo a su conveniencia

Se publicarán los resultados de esta investigación?

Se espera que los resultados de esta investigación sean publicados en una revista científica o publicación similar

Registro policial (si aplica)

No aplicable

Contacto para mayor información

MIKLOS LUKACS DE PERENY  
PhD Researcher  
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Fax: +44 (0)161 275 6596

E-mail: [miklos.lukacs@postgrad.mbs.ac.uk](mailto:miklos.lukacs@postgrad.mbs.ac.uk)

Qué hacer si ocurre algún inconveniente?

Recurrir a los datos de contacto previamente mencionados

Si el participante desea presentar un reclamo formal sobre la conducta del investigador o de la investigación, por favor contactar al Head of the Research Office, Christie Building, University of Manchester, Oxford Road, Manchester, M13 9PL, United Kingdom.

APPENDIX 2 – CONSENT FORM

THREE ESSAYS ON STANDARDS, GOVERNANCE AND STRUCTURAL CHANGE IN  
THE PERUVIAN ALPACA FIBRE VALUE CHAIN

CONSENT FORM

If you are happy to participate please complete and sign the consent form below

- Please  
Tick  
Initial  
Box
1. I confirm that I have read the attached information sheet on the above project and have had the opportunity to consider the information, ask questions and had these answered satisfactorily.
  2. I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving a reason.
  3. I consent to audio-taping the interview.
  4. I agree to take part in the above project.

Name of participant	Date	Signature
_____	_____	_____

Name of person taking consent	Date	Signature
_____	_____	_____

TRES ENSAYOS SOBRE ESTANDARES, GOBERNANZA Y CAMBIO  
ESTRUCTURAL EN LA CADENA DE VALOR PERUANA DE FIBRA DE APACA

HOJA DE CONSENTIMIENTO

Si decide participar por favor complete y firme la hoja de consentimiento en el espacio asignado

Marcar  
con un  
aspa

1. Confirmo que he leído la hoja informativa sobre el proyecto de investigación y que he tenido la oportunidad de evaluar esta información y hacer preguntas, las cuales han sido respondidas satisfactoriamente

2. Confirmo que he leído la hoja informativa sobre el proyecto de investigación y que he tenido la oportunidad de evaluar esta información y hacer preguntas, las cuales han sido respondidas satisfactoriamente

3. Acepto que esta entrevista sea grabada (audio)

4. Acepto participar en este proyecto

Nombre del participante

Fecha

Firma

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Nombre de la persona que  
registra el consentimiento

Fecha

Firma

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## APPENDIX 3 – SEMI-STRUCTURED INTERVIEWS - QUESTIONNAIRE

English version

The University  
of Manchester

MANCHESTER  
1824

### THREE ESSAYS ON STANDARDS, GOVERNANCE AND STRUCTURAL CHANGE IN THE PERUVIAN ALPACA FIBRE VALUE CHAIN

#### Questionnaire

1. Please make a brief presentation of your organization and explain what role(s) does it play in the alpaca fibre production chain
2. What is the NTP and what is/are its purpose(s)?
3. How diffused is the NTP among (1) small (2) medium and (3) large producers? Can you provide any quantitative estimates?
4. What role(s) does your organization play in the diffusion of the NTP and what are the mechanisms/tools it applies to facilitate this process? At which stage(s) of the production chain does it intervene and with which actor(s) does it mainly relate for this purpose?
5. In your opinion which actors of the alpaca fibre production chain (1) facilitate (2) limit and (3) should have a more active participation in the diffusion of the NTP? Why?
6. What is the level of adoption of the NTP among (1) small (2) medium and (3) large producers? Can you provide any quantitative estimates?
7. What role(s) does your organization play to facilitate the adoption of the NTP and what are the mechanisms/tools it applies? With which actors does it mainly relate for this purpose?

8. In your opinion which actors of the alpaca fibre production chain (1) facilitate (2) limit and (3) should have a more active participation in the adoption of the NTP? Why?
9. If applicable, what other alpaca fibre standards - formal and/or informal – do you know about? If your response is affirmative, how diffused and adopted is/are this/these standard(s) among (1) small (2) medium and (3) large producers? How and at what level of the production chain does it/do they compete with the NTP?
10. Since the issuance of the NTP do you think that the quality of fibre produced by (1) small (2) medium and (3) large producers has improved? If not, why? If yes, how are these improvements expressed?
11. Any final comments to complement the information provided or add something not considered by the interviewer?

TRES ENSAYOS SOBRE ESTANDARES, GOBERNANZA Y CAMBIO ESTRUCTURAL  
EN LA CADENA DE VALOR PERUANA DE FIBRA DE ALPACA

Cuestionario

1. Puede presentar brevemente a su organización y explicar qué funciones cumple ésta en la cadena nacional de producción de fibra de alpaca?
2. Qué es la NTP y para qué sirve?
3. Cuán difundida está la NTP entre productores (1) pequeños (2) medianos y (3) grandes? Puede proporcionar alguna estimación cuantitativa?
4. Qué rol(es) cumple su organización para difundir la NTP y cuáles son los mecanismos/herramientas que aplica para facilitar este proceso? En qué etapa(s) de la cadena de producción interviene específicamente y con qué actor(es) se relaciona principalmente para este propósito?
5. Qué actores de la cadena nacional de producción de fibra de alpaca cree usted que (1) facilitan (2) dificultan y (3) deberían tener una mayor participación en la difusión de la NTP? Por qué?
6. Cuán adoptada está la NTP entre productores (1) pequeños (2) medianos y (3) grandes? Puede proporcionar alguna estimación cuantitativa?
7. Qué rol(es) cumple su organización para facilitar la adopción de la NTP y cuáles son los mecanismos/herramientas que utiliza para ello? Con qué actores se relaciona principalmente para este propósito?
8. Qué actores de la cadena nacional de producción de fibra de alpaca cree usted que (1) facilitan (2) dificultan y (3) deberían tener mayor participación en la adopción de la NTP? Por qué?



9. Qué otros estándares de fibra de alpaca (formales e informales) ha conocido o conoce? En caso afirmativo, cuán difundidos y adoptados están esos estándares entre productores (1) pequeños (2) medianos y (3) grandes? Compiten con la NTP?
10. Desde la emisión de la NTP cree usted que ha mejorado la calidad de fibra producida a nivel de productores (1) pequeños (2) medianos y (3) grandes? Cómo y por qué se expresa(n) esta(s) mejoría(s)?
11. Desea hacer algún comentario u observación final para complementar la información proporcionada o agregar algo que el entrevistador no haya considerado?



























































































