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The Dynamics and Quality of Institutions for Structural Change and Industrialization in Africa

Coordinator:
Chiar.mo Prof. Stefano Azzali

Tutor:
Chiar.ma Prof. Lauretta Rubini

Candidate: Mariamawit Ayele

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Abstract

In the last three decades, the predominant role of institutions has re-emerged as a major determinant of economic growth and sustainable development. The increasing regional and national disparities have contributed to the emerging consensus that institutions matter greatly for economic performance. Yet, magnificent discrepancies are witnessed on how, when, where and to what extent institutions should play the intended role to achieve the desired development goals. The premise *"Not all types of institutions are important for all types of sectors in all countries at the same time"* is the basis of these ongoing debates. Particularly for developing countries, identifying the context-based institutional configurations to promote the right sectors at the right time could be the best development policy but not an easy task to do. In this regard, previous studies on the role of institutions for economic development persistently relied on Growth Domestic Product as a measurement of economic performance and skipped the investigation of the dynamics of structural change triggered by institutions and their long-term effect.

However, since-2000s, some scholars have started to question the overriding emphasis on growth, particularly in African countries, as they had experienced a remarkable, average GDP growth rates but little advancement either in living standards or structural change. The structural change, which typically happens through a movement of resources from agriculture to the industry sector, then to the service sector, appears to skip the secondary sector, mainly the manufacturing sector in Africa. This is what has been called premature de-industrialization, characterized by increasing shares of employment in the service sector and informal activities and stagnating or decreasing trends in the manufacturing sector. The main explanations provided for Africa's unusual trend of industrialization relate to unsuitable policies, institutions, and the consequent Dutch disease effect arising from an extensive natural resource rent. In addition, the institutional arrangement and coordination failures that arise from various inter-sectoral and structural interdependencies determine the development of manufacturing in Africa, characterized by bottlenecks and constraints related to lack of development in the local production systems, economic diversifications, and value additions.

This calls for the attention of both governments and academia to investigate how institutions affect the dynamics of structural change in Africa and what type of institutions could favor industrialization. Therefore, this thesis examines the dynamics and quality of institutions for structural change and industrialization in Africa. For this purpose, the study uses panel data on 40 African nations from 2000 to 2019 to analyze the role of the quality of institutions. Composite indexes built from The World Banks' World Governance Indicators are used to measure the multidimensional aspects of institutions in Africa, while the GDP and employment share of manufacturing and its merchandise share of export is used to measure the level of industrialization. In order to control for regional disparities, the study divides Africa into its five regions. Various controls (income level, urbanization, domestic credit, trade openness, export concentration, oil export, FDI, human capital, and infrastructures such as energy supply and transportation) are also included. The results show that institutions are significant for the development of the manufacturing sector; however, once the homogeneity within regions and the heterogeneity among them are taken into account, institutions have a moderate effect. This implies *that the context and the dynamics of the internal environment and the economic structure of regions* might determine to a large extent, the effect of institutions on the development of manufacturing. The result suggests the need to redesign and realign institutions towards regions' context and economic structures and emphasize the interdependencies among sectors that demand better institutional configuration and strategic coordination.

INTRODUCTION

Overview

Why have some countries succeeded in being industrialized, and why are some prematurely de-industrializing? Why are some developing countries capable of transforming their traditional sectors into modern ones and low value-added sectors into high value-added ones, while others fail in doing so?

These questions have spurred the research agenda in various disciplines: macro and microeconomics, economic history, development economics, political economy, and social policy. Following these theoretical foundations towards understanding the dynamics of structural change, this thesis strives to construct its own novel contribution to the literature on developing counties, with a particular reference to African nations. The ultimate goal is to identify policy instruments and institutional arrangements required to stimulate the development of manufacturing industries in Africa.

The notion of institutions has been actively incorporated in economic theories since the first decades of the 20th century, mainly based on the evolutionary conception of institutions by Veblen Thorstein (1899) and later through the emergence of the Old Institutional Economics rooted in the American institutionalist tradition (Hodgson, 2009 and 2007b; Lawson, 2002 and 2015).

From the structural change point of view, both evolutionary and old institutionalists assume institutions as endogenous and integral parts of a specific production structure and as both drivers and outcomes of change occurred in various modes of production and technological systems (Gunnarsson, 1991). In this regard, institutions play a vital role in structural change and, thus, economic development, even if they act in different ways according to the different contexts and times (Reinert, 2006).

Later, in the 1940s-1960s, institutions' role in economic development, particularly in structural change, was central for "classical" development economists, who recognized that socio-economic and political institutions in developing countries are highly different from those in industrialized countries (Chang & Andreoni, 2019). As a result, the common view in

development economics was that the possibilities for economic advancement primarily rely on the institutional and social arrangements within which economies operate.

Simultaneously, in the 1950s and 1960s, a structuralist approach to development, characterized by a relatively more interventionist and hence institutionalist perspective, emerged (de Medeiros, 2020). Strong government interventions and institutions were proposed to overcome the externalities and coordination issues arising from the structural heterogeneity of the economic system, generating unequal opportunities. For this purpose, especially for the promotion of the development of domestic industries, structuralists proposed the Import Substitution Industrialization (ISI) strategy.

Despite its role in triggering economic growth in some countries, this strategy was generally unsuccessful, and later in the 1980s, it was criticized for having shielded failing and uncompetitive industries for long. For this reason, the strategy was largely abandoned, even if the structuralist approach towards development remained embedded in the industrial policies of several developing countries.

In the 1980s and 1990s, international financial organizations, i.e., the World Bank and the IMF, designed their strategy based on the standard neoclassical and neoliberal theories, proposing one mix of policies (Structural Adjustment Programs, SAPs) that was supposed to work in all type of sectors, in all countries, at the same time, regardless of countries' social and institutional context (Chang, 2006, 2011). Like the Washington Consensus, this approach advocated marketization, privatization, and stabilization to realize a well-functioning market economy with macroeconomic stability (Williamson 1990; Stiglitz, 2008). Most developing countries implemented this recipe; however, the policy framework failed, resulting in an even wider income gap between advanced and developing economies (Lin, 2011, 2019). Especially in Africa, the economic performance of countries began to shrink and reached the worst level in the 1980s and 1990s (the 'lost decades,' see Bates et al., 2007) due to a mix of internal political instability and the application of non-contextual economic development policies imposed by SAPs. Indeed, the frequency of financial and debt crises in developing countries in these years was even higher than in the period of structuralism.

In the late 1990s, there was an unanticipated change in the perception of institutions (Chang & Andreoni, 2019). Even neoclassical economists and international organizations like World Bank and the IMF, which assumed institutions as exogenously given entities, have started emphasizing their role as major determinants of economic growth and development (Gunnarsson, 1991; Stein, 2008; Chang, 2007). As a result, poor institutions emerged as

primary 'explanations' of the failures of the 'good policies' in several developing countries. This perception was accompanied by other factors such as geography, resource endowments, climate, ethnic diversity, and culture as explanations of poor economic performance in developing countries (Chang, 2018). Consequently, the international organizations started to impose the deployment of Global Standard Institutions (GSIs) and other related conditionalities', demanding countries to embrace 'better' institutions to enhance the quality of governance (Kapur & Webber, 2000). Even though there is no consensus about 'better' institutions' definition, GSIs are typically those prevailing in developed countries, i.e., more secure property rights, sui table business climate, and maximized market freedom (Chang, 2006).

With the new interest in institutions being at the center of economic policies, the notion of institutions has become the widespread research area both in academia and in international organizations (Chang, 2011). Simultaneously, the mainstream-based New Institutional Economics became prevalent in the debate (Reinert, 2006). The term "new" is not because it is a new version of the Old Institutional Economics, but due to its attempts to relate itself to neoclassical economics.

In line with this, NIE considers institutions as exogenous factors to the production structure of an economy (Gunnarsson, 1991). This assumption often hinders a more profound and contextual understanding of the conditions for economic development and structural change in developing nations. In this framework, the importance of institutions has been limited to their impact on economic growth, particularly by considering the rise in the gross domestic product (GDP) as the predominant measurement of economic advancement.

Nevertheless, NIEs theoretical views were eventually disproved by two main factors. The first is the success story of developmental states such as the Asian Tigers – and later of China – that were characterized by strong government interventions and institutional configurations that are quite different from those suggested by NIE. The second is the divergent economic results in countries that pursued donors' institutional prescriptions influenced by NIE (Khan, 2010; Lin, 2011, 2019).

However, since-2000s, scholars started questioning this overriding emphasis on growth, particularly in African countries, as they experienced high and remarkable average GDP growth rates but limited advancements, either in living standards or in structural change. After the 2000s, concepts such as "Emerging Africa" (Radelet, 2010) and the "African Growth Miracle" (McMillan et al., 2014) appeared to be premature, given that such growth mainly

came from natural resource and commodity prices booms and foreign aid increases and mostly failed to be materialized into formal employment opportunities, advanced living standards, and productivity-enhancing structural change (Altenburg & Melia, 2014).

Nowadays, there is a consensus that, in order to achieve inclusive and sustainable development, growth should be accompanied by structural change towards high value-added sectors (UNECA, 2017). In order to achieve this, there is a need for strategic coordination of the interconnected and dynamic structural change processes towards industrial development, particularly in manufacturing industries (Nissanke, 2019). In particular, these processes require policy instruments and institutional arrangements aiming to achieve a shift of the entire economic setting toward high value-added and knowledge-based activities and strengthening the technological capabilities of domestic firms to enable them to compete in global value chains and international markets (Ajakaiye & Page, 2012; Page, 2012a, 2018). Together with the increasing growth rates, these interacting and interdependent structural change processes are recognized as the key to unlocking rising income levels and enhanced living standards (ACET, 2014, AfDB, 2017; IMF, 2012; UNECA, 2017).

As a result of the failure of NIE to explain recent development dynamics, a new strand of literature has emerged under the framework of what has been called context and production-specific institutions. This literature recognizes the centrality of the context, the importance of taking into account the institutional evolutions, and the political economy under which they are functioning in order to reach structural change and economic development.

Based on these latest contributions, this thesis analyzes the ways and the extent to which institutions affect structural change in Africa, as well as the type of institutional arrangements that could favor industrialization.

Objectives and Outline

As discussed previously, the major objective of this thesis is to examine to what extent the dynamics of structural change in Africa are determined by various types of institutional arrangements. In order to achieve this general objective, the thesis is organized into five chapters with specific objectives. The first chapter in this thesis aims to address the origin and function of institutions under the framework of the evolutionary approach. Consequently, it

addresses the question: what are institutions? How do they evolve over time? What roles do they play in society? How do they affect human behavior, and how does human behavior affect them? Once these questions are addressed, the chapter examines the premises and controversies between the two major institutional economics perspectives: Old and New Institutional Economics, their differences and similarities, and their strength and weaknesses to later identify relevant institutional arrangements to the African context.

Chapter 2 discusses various models of structural change based on both neoclassical and development economics theories and from two main perspectives of studying structural change: structural dynamics perspective and evolutionary perspective. Once the theoretical foundations are laid, the chapter examines the premises and outcomes of the three major approaches of structural change: the structuralist approach, neoliberalism approach, and the new structural economics approach to draw lessons and policy implications for developing countries. Relevant policy instruments and some key ideas on socio-economic and political areas that need institutional configurations to deploy these policies in a more contextual and practical way are drawn from this chapter and implied in the following chapters.

Whereas Chapter 1 and Chapter 2 focuses on the theoretical aspects of the two major areas of interest in this thesis: institutions and structural change separately, Chapter 3 explores the various approaches to institutional change and examines how these changes affect the dynamics of structural change in different contexts at different times. It also analyses the two-way causality from institutions to structural change and from structural change to institutions. Finally, institutions' persistence and path-dependency nature are examined to indicate the importance of the context and political economy under which institutions function and the subsequent role of institutions in developing countries in their various forms to better understand how institutions function in various contexts.

Chapter 4 studies the peculiar trends and features of structural change in Africa and how various industrial policies and institutional arrangements affect the industrialization process. It also examines the various arguments on the premature de-industrialization in Africa, emphasizing the manufacturing sector. Numerous data on different sectors in Africa and its five regions: North, East, Central, South, and West Africa, are analyzed. This includes agriculture and its growth trend in terms of productivity and export, the growth trend of service and its sub-sectors, industry and its sub-sectors, and other dimensions of structural change in Africa are extensively analyzed. Various determinant of structural change in Africa is also identified with possible policy tracks to follow in the future.

Chapter 5 empirically analyzes the relationship between institutions and structural change using various measurements. Composite indexes built from The World Banks' World Governance Indicators are used to measure the multidimensional aspects of institutions in Africa, while the GDP and employment share of manufacturing and its merchandise share of export is used to measure the level of industrialization. In order to control for regional heterogeneity also, this chapter divides Africa into its five regions. Various control variables (income level, urbanization, domestic credit, trade openness, export concentration, oil export, FDI, consumer price index, human capital, and infrastructures such as energy supply and transportation) are included, and the results for most of these variables are in line with the existing literature. The results indicate that institutions play significant roles in the development of manufacturing; however, once the homogeneity within regions and the heterogeneity across regions are taken into account, institutions have a moderate effect. This implies that the context and the dynamics of the internal environment and the economic structure of regions might determine the effect of institutions on the development of manufacturing. The result suggests the need to redesign and realign institutions towards regions' context and economic structures in a context-based way and emphasize the interdependencies among sectors that demand better and strategic coordination.

Chapter one
INSTITUTIONAL ECONOMICS:
ORIGINS, TAXONOMIES AND PROSPECTS

1.1 Origins of institutions

The notion of institutions goes back to the time of Scottish Enlightenment philosophers, i.e., David Hume (1740), Adam Smith (1759), and Adam Ferguson (1767), who emphasized the crucial function of institutions in society's day to day life and effective interactions (Hodgson, 2006; Moroni, 2010). They also highlighted the unintended, evolutionary, and spontaneous emergence of institutions, mainly through the sentimental human nature of decision-making (Moroni, 2010).

For instance, David Hume, in his notable book "Treatise of Human Nature" (1739/40), classified an individual's decision-making process into three distinctive components: *"Passions, Reasons, and Belief."* According to Hume, passions serve our destination, while reason slavishly guides the way that endeavors to reach us there based on certain beliefs concerning the constraints in the external environment and the possible results of alternative activities (Arnsperger & Varoufakis, 2006; Martin, 2021). Hume (1740: p. 315), for example, wrote about the emergence of ownership rules, saying: *"It is for my own sake that I leave another in possession of his goods, provided that he will act in the same way towards me. He is aware of a mutual interest in regulating his conduct, and this may be adequate enough to serve as a rule or deal between us. Hence, without a proposition of a promise, since the actions of each of us have a reference to those of the other person, they are enacted upon the assumption of what is to be acted by the other person".*

Accordingly, Hume related the rules concerning the stability of possession with social conventions and with our repeated experience about the inconveniences arising from transgressing them, thanks to which they gradually emerge and acquire force (p. 315). Based on Hume's sentimentalist theories, his closest friend, Adam Smith, developed the theory of sympathy in his least-read book, *"Theory of Moral Sentiments"* (1759), where sympathy is defined as a mental faculty through which we can approve or disapprove others and our own

sentiments and actions, thereby determining moral sentiments such as the propriety and the merit of actions ((Mueller, 2020; Tajima, 2007). Further, Smith claims our moral sentiments have "an immediate reference" to others' moral sentiments: *"Whatever judgment we can form regarding our own sentiments and motives, accordingly, must always hold some secret reference, either to what are, or to what, upon a specific condition, we imagine, ought to be the moral judgment or perception of others and we also attempt to inspect our own conduct as we suspect any other, just, or impartial spectator would inspect it"* (1759, III.1.p. 2).

Smith argues that humans are always in need of others' approval; what grants this approval is socially constructed and, to a considerable extent, defined by the values developed in the simultaneous evolution of norms and institutions in society (Evensky, 2005; Wisman, 2019). In other words, humans internalize these values in varied manners, such as education and socialization. In particular, Smith points out the role of observation in this socialization process: *"the essence of our own actions is only revealed by reference to how others perceive them. Society provides the mirror to examine our judgments. In this way, moral rules are inductive generalizations and intersubjectively formed: it is from experience and induction that the general maxims of morality are formed"* (1759, p. 505; VII.3.1). Such an inductive evolutionary process of learning, internalizing, and generalizing takes place through enculturation.

Similarly, Adam Ferguson wrote about how societies are formed and described the evolutionary nature of institutions as follows (1767: p.10): *"In humankind, the species and individuals have progressed: they construct in every succeeding age on foundations previously laid: and, in a succession of years, they tend to be perfect in the application of their faculties, to which the support of long experience is needed, and to which many generations must have integrated their exertions."* Such pioneering propositions of the Scottish Enlightenment scholars eventually led to an evolutionary approach towards social institutions, consisting, according to Hayek (1982; 1988), of two fundamental conceptions.

The first conception is that most contemporary social institutions are unintentional results of gradual evolutions in the course of time, while the second conception states that the knowledge and wisdom of generations are embedded in these institutions. Therefore, institutions are successfully evolved experimentations since they hold a crystallized form of knowledge and wisdom, which would be unreachable to societies and individuals in present times. Based on Hayek's prior proposition, Moroni (2010) presented the evolutionary process as institutional trials and errors process that incorporates three steps: (i) the development of

various norms and rules; (ii) competition and selection among various norms and rules; (iii) dissemination and persistence of the selected scheme of rules.

Here, the specific mechanism in charge can be group selection, because specific rules emerge due to the greater success obtained by groups that pursue them in comparison to those that pursue different rules. In this sense, institutions are the results of a creative selection process evolving as social structures that construct a new kind of reality. In such an evolutionary perspective, individuals are rule-following, instead of a rational and utility-maximizing creatures, as proposed by the neoclassical view of homo economicus (Hayek, 1988). In other words, individuals are intrinsically ignorant as single actors, while institutions support them to cooperate, and through them, they can access more information and knowledge than it would be separately possible.

In this regard, institutions are essential segments of society that enable individuals to deal with individually incomplete information and limited knowledge. In general, it is this evolutionary approach of culture, institutions, and society that laid the foundations for subsequent evolutionary theories, such as Charles Darwin's theory (1871), widely acknowledged by scholars of institutional and evolutionary economics (Hodgson, 2006b, 2007a; Lawson, 2003). Particularly, the evolutionary theory of institutional change is indebted to Thorstein Veblen (1899), who considers the notion of *"habits of thought"* as institutions in which habits are persistent and adaptable dispositions to believe and behave in a specific manner.

Veblen (1899, p. 188) claims that the development of social structure involves the natural selection of the fittest habits of thought (institutions) by selecting those individuals granted with the fittest disposition and the highest capacity to adapt to the continuously changing environment by forming new institutions (Coccia, 2018). Here, institutional change is a sequential and reciprocal evolution of both individual and shared habits of thought, in the sense that existing habits of thought, both individual and shared, are formerly acquired and determined by the past and the present, while they jointly determine the prospect of institutions (Brette, 2003).

In his illustration of such evolution, Veblen (1898, 1899) borrows the general principles of the Darwinism approach, in which habits and institutions are considered as units of selection (Hodgson, 1993a, 2004a). Veblen claims that science must respect Darwinian approaches and principles; *'the Darwinian approach presumes that men's rational reasoning is highly influenced by factors other than intellectual and logical forces such as habits, beliefs, and*

reasons.' (Veblen, 1919a, p. 401). Further, he continues asserting that, in their evolutionary order, *"reason comes after belief, belief comes after habit, and habit comes after instinct; thus, instinct is one of the preconditions for a reason but not its antithesis"* (as quoted by Camic & Hodgson (2011, pp. 23, 19).

According to Veblen, in this order, habits, beliefs, and reasons have evolved and appeared in individuals' ontogenetic development through socialization. Veblen agrees with the idea that humans do use reason, and they do it in overly complicated ways, such as in search of answers to intellectual questions; however, their daily behavior is mainly driven by habits that have been planted in socialization (Camic & Hodgson, 2011; Hodgson, 2007c; Lawson, 2015). The Veblenian view argues that institutions only function properly when the rules applied are embedded in prevailing habits of thought and behavior. Accordingly, Veblen (1919a, p. 239) defines institutions as 'settled habits of thought common to the generality of men' that appear to arise from 'the inmates themselves but not from the objective constraints.'

Further, he considers habits as the basis of continuity within individuals and society from a synchronic and diachronic point of view. From a synchronic perspective, the principle of continuity implies that individuals are involved in the various spheres of activities that are interdependent at a certain time. According to Veblen (1908, p.39), *"individuals subjected to habituation are individual agents, and anything that influences them in any one string of activity inevitably influences them to some extent in all their other activities."* From the diachronic perspective, an individual's current behavior is "path-dependent," given that the prior process of habituation determines the essence of an individuals' habits at a certain. In other words, habits are the basis of the continuity between individuals and society, namely of the individuals' social nature and the (synchronic and diachronic) continuity of society itself (Brette et al., 2017).

Similarly, one of the famous pioneers of the Austrian School, Friedrich Hayek, has put the *"habitual modes of conduct"* at the center of his evolutionary theories. Hayek's conceptualization of institutions is constructed on *"the central ideas of cultural evolution and group selection towards social order"* (Witt, 1989, p. 186). According to Hayek (1990, p. 16), "the numerous structures, cultures, traditions, and institutions of social order emerged steadily as the selection process of variations of habitual modes of conduct." Such a selection process is associated with "an extended order of human interactions which comes into existence through the variations of filtering and selecting process far away exceeding our imagination or our capability to design" (Hayek 1990, p. 14). This perspective of institutional change is rooted

in the selection process at the group level, through which the evolution of rules of conduct is associated with the successful groups who practiced them while displacing rules of other groups (Hayek, 1973, p.18).

In this process, thoughts and actions are driven by rules which have evolved through selection processes in society (ibid). Further, based on Veblen's ideas regarding instincts and habits, Hayek's view creates a link between institutions and individuals' minds through institutional norms that shape and regulate social and individual activities (Ambrosino, 2014, 2016, 2013; Ambrosino et al., 2018; Rizzello & Turvani, 2000). Social norms arise from human activity and the continuous feedback between individual agents and the external environment and social context. Again, social norms change gradually through the cultural selection that enables the evolution of effectual norms capable of maintaining the social order (Hayek, 1988). In Hayek's view, such a notion of an institutional norm demonstrates the link between institutions and the human mind (Fontana, 2012; Hayek, 1952;1967;1973).

In this regard, the formation of institutional norms is assumed as an evolutionary process that involves producing knowledge and forming a behavioral pattern in both informal and formal ways. Further, the cultural dimension and the social interaction mold this process. Hence, institutions and individuals are reciprocally connected because institutions mirror individuals' way of perception and knowledge; spontaneously, they function as social networks constraining and shaping individual behavior. In Hayek's view, this conception of institutional norm addresses the question of how knowledge is produced and disseminated or diffused (Hayek, 1945).

The connection between institutions and an individual's mind had already been captured and stressed by Veblen's works. Nevertheless, while Veblen has undertaken the analysis at the social level skipping the investigation on the area of the linkage, Hayek goes further by identifying the cognitive roots of institutional origins and by considering the evolution processes a core area of investigation, thus moving further the analysis from the social level to the individual one (Ambrosino, 2014; Ambrosino et al., 2018). Furthermore, positioning individuals' knowledge production at the center of the investigation allows for incorporating the individuals' cognitive processes activated by individuals' interaction with the external environment, which determines the emergence of institutional norms (Egidi & Rizzello, 2004).

However, incorporating individuals' mind in the analysis of institutional change requires an intermediary explanation, balancing the individual and the social aspect of the analysis and highlighting the crucial role of habits. As proposed by both old Scottish Enlightenment scholars

and subsequent evolutionary theorists, repeated behavior is crucial for the generation of habits because it leads to the formation of customs or actions that consequently represent the basis for much of the rule-following behavior. Consequently, habits form the ground of both reflective and non-reflective behaviors as they filter individuals' experiences and lay the foundations of instincts and interpretations (Kilpinen, 2000; Hodgson, 2006a; Brette et al., 2017). Further, beliefs and reasons are usually the rationalizations of deep feelings and passions rooted in habits previously formed by repeated patterns of behaviors (Kilpinen, 2000; Wood et al., 2002).

The interdependence between passion, behavior, habit, and rationalization in society allows explaining the normative power of custom in general and the foundational role of habit in sustaining the rule-following behavior of individuals (Hodgson, 2006a). According to Hodgson (2006a), a habit has to attain some innate normative scope to acquire the status of a rule, be possibly codifiable and be predominant within society. The prevailing rule structure offers constraints and incentives for individual activities. In this process of channeling behavior, coherent habits are further expanded and reinforced across societies. Hence, the existing rule enables the creation of more habits and choices in line with its replica (Hodgson, 2006b; Lawson, 2002, 2015).

Consequently, habits are the constitutive infusions of social institutions since they provide enhanced durability and normative power. By replicating shared habits of thought and action, institutions devise robust conformity and normative judgment mechanisms, leading to an essential ontological proposition that society is not just a collection of individuals, but it instead implicates a system of rules according to which individuals interact and communicate (ibid). Such an ontological standpoint clarifies that any kind of individual interaction is untenable without social rules or institutions. As a result, mainly based on Veblen's evolutionary conception of institutions, the Old Institutional Economics emerged primarily in the American institutionalist tradition in the early 1900s (Hodgson, 2009;2007b; Lawson, 2002, 2015).

Later in 1919, Walton Hamilton officially launched the movement of institutional economics at the 1918 American Economic Association (AEA) conference (Hodgson, 2001 pp.155– 156). After the inauguration of *"institutional economics,"* most influential OIE scholars such as Wesley Mitchell, John M. Clark, and John Commons joined the institutionalist paradigm, contributed to the OIE's origins, and developed a theoretical alternative (Kaufman, 2017). Accordingly, the following section focuses on Old Institutional Economics, which aimed to present itself as a substitute for neoclassical economics.

1.2 Old Institutional Economics

Old Institutional Economics (OIE) or 'institutionalism' emerged in the early decades of the 1900s in the United States of America (Hermann, 2018; Rutherford, 2011). Its biological and cultural roots can be identified in the evolutionary processes pioneered by Charles Darwin, William Sumner, and Herbert Spencer, in the theories of socialism by Karl Marx and Edward Bellamy, and in the philosophy of Pragmatism by John Dewey and William James. It also shared its roots with the German historical school, whose foundations were laid by Richard T. Ely, who invested remarkably in the first generation of institutionalism (Kaufman, 2017). OIE played an influential role in its early period to a point where, it came to be considered mainstream economics (Hermann, 2018).

The fundamental concepts characterizing the OIE can be incorporated in a conceptual framework consisting of values, habits, instincts, norms, customs, conflicts, firms, organizations, and the government; the necessary factors to understand the human activities of social, economic, and political provisioning (Hermann, 2018; Rutherford, 2011). In other words, every economic system spontaneously incorporates historical, social, psychological, and institutional dimensions. Consequently, its broader understanding requires an inclusive examination of all those dimensions. For this purpose, it requires an interdisciplinary approach associated with psychology, sociology, philosophy of Pragmatism, political science, and history (Hermann, 2018; Kaufman, 2017).

The main ideas behind the OIE can be summarized as follows (see, among others, Gruchy, 1972, 1987; Hermann, 2018; Hodgson, 1998b; Seckler, 1976): (i) it requires a broader analysis under the social and institutional framework to examine the interactive, interdependent, and complex character of human nature (ii) it acquires inductive methodology relying on statistical analyses and case studies to avoid any deductive and abstract theorizing detached from the reality (iii) it emphasizes the concept of 'social control' such as the proactive role of policies and institutions in addressing economic and social issues (iv) a multi and interdisciplinary approach to acquire a more pragmatic understanding of human nature from both individual and social level perspectives.

As discussed previously, old institutional economists became enormously engaged in many relevant methodological cases, such as a holistic conception of individuals and of their collective expressions and a multidisciplinary approach to better analyze the manifold relationship between individuals and the social, cultural, and economic contexts where they

live (Hermann, 2018; Rutherford, 2011). In this regard, the OIE approach rejected the narrow positivistic approach that grants ‘scientific validation' only for 'measurable phenomena.' Instead, it firmly demanded a path that goes beyond and considers the context of qualitative and non-measurable activities (Hermann, 2018). The following section analyzes the main conceptual pillars of OIE in detail.

1.2.1 Methodological Holism Vs. Reconstitutive Downward Causation

Since Adam Smith and his famous theory of self-interest, *"methodological individualism,"* a social approach based on the premise that *"individuals' attitude and activities can explain all statements on social facts and phenomena"* has been widely practiced (Ząbkowicz, 2017). Such an approach explains the emergence of institutions based on given individuals and claims that only through individuals involved in them that social structures and collective actions can be explained (Hodgson, 2007b; Udéhn, 2001).

Later, in the 19th century, the German Historical School found out that methodological individualism provided no solution for the social disputes and conflicts witnessed in industrializing Germany (Ząbkowicz, 2017). As a result, German representatives of the school developed another social approach*, "methodological holism,"* that claims that society is a whole and not a mere sum of individuals and that it influences and constrains individual behavior (ibid).

According to such an approach, economic activities cannot be analyzed separately because social and economic resolutions can be found in social contexts, such as habits, customs, norms, and laws under which economic activities are intertwined with human behavior (Ząbkowicz, 2017; Zahle, 2019). Holism found continuation in American institutionalism, where a conceptual framework of individuals' purposes and preferences is developed to make sense of its interaction with the real world (ibid).

The starting point for old institutionalists is the reception and conception of information by individuals and the required cognitive frames and paradigms to process and interpret the received information. To this aim, they acknowledged that at least some form of language is required to undertake any kind of communication. Accordingly, old institutionalists claimed that the transmission and exchange of information from institutions to individuals is unattainable without an extensive process of "enculturation," through which individuals

understand the substance and weight of the information that is being shared with them (Hodgson, 1998b, 2007c).

Nevertheless, the notion that circumstances mold individual purposes and preferences, a concession to methodological holism that attempts to explain all social circumstances in terms of institutions or structures alone, is criticized for picturing individuals as puppets of their social or cultural context (Hodgson, 2006, 2007b; Udéhn, 2001). Particularly, methodological individualists frequently blame methodological holism for downplaying the role of individual agents and for overlooking the ways in which individuals themselves can be basically different (Hodgson, 2009, 2006).

Nevertheless, not all old institutionalists have such exclusively "top-down" views (ibid). For instance, Veblen (1919: 243) argues that the behavior of the individual members of the group drives the dynamics in *"the institutional fabric,"* and yet, *"same institutions operate to direct and define the goals and results of the conduct of individual members in a group."* Both upward and downward causation are included in the scripts of two famous old institutionalists, Veblen and Commons. These are explained by processes in which individuals construct and modify institutions, just as institutions constrain and shape individual behaviors, implying that old institutional economics is not necessarily bounded in holism. Accordingly, institutions are structures that enable, influence, constrain individuals' behaviors. It is worthwhile to further explain such effects of institutions on individuals and their purposes (Hodgson, 2009; 2007c).

There is a circular relation according to which relevant institutions and cultures can partly explain individual purposes and preferences, which in turn, can be partly explained in terms of other individuals' purposes and preferences that cultural and institutional factors can partly explain, and so on (ibid). The situation is analogous to the dilemma "which came first, the chicken or the egg?" (Hodgson, 2007c). In this regard, Robert Nozick (1977: p. 359) poses a question; *"In this apparent chicken and egg situation, why aren't we equally methodological institutionalists as we are methodological individualists and vice versa?"*

According to Hodgson (2009), one possible answer can be that neither institutional nor individual factors have an authorized primacy in explaining such infinite regress. According to him, the theoretical claims that, ultimately, the whole explanation should be in terms of institutions or individuals solely are unreliable.

Such a puzzling circle of determination does not imply that institutions and individuals have equal explanatory and ontological status. Regarding the ontological status of both individuals and institutions, old institutionalists drew much of their inspiration from Veblen

and kept his evolutionary emphasis on the prominent analytical significance of institutions and institutional change in explaining both individual behaviors and societal changes (ibid). One example is the notion of **endogenous preferences.** Old institutionalists argue that individual preferences should not be assumed as given but must be considered as partly molded by the cultural and institutional context (Dequech, 2002; Lawson, 2005; Spithoven, 2019). Such notions of endogenous and context-dependent preferences are related to Veblen's open-ended and evolutionary view, in which every segment of a system evolves, including individual preferences.

Despite their recognition of malleable preferences, many conventional economists often consider fixed preferences as simple and reasonable assumptions (Hodgson, 2009). Nevertheless, some level of the malleability of preferences is required to explain institutional evolution and stability or resilience. In other words, it is the reconstitutive capacity of institutions to change preferences that reinforce institutional stability (Hodgson & Knudsen, 2004). Yet, as important it is to examine the effect of institutions on individual preferences, it is also crucial to explain the cause-and-effect relationship among them. A relevant explanation is found in Veblen's (1914, 1919) writings, which explored how social contexts and constraints determine the formation of habits, which in turn lay the foundations for changing preferences and choices (Camic & Hodgson, 2011; Hodgson, 2007).

According to Veblen's legacy, it is through habits that the constraining, shaping, and enabling capabilities of social institutions generate new dispositions and perceptions (Brette et al., 2017; Hodgson & Knudsen, 2004). In the same way, it is through institutions as embedded systems of societal rules, shaping and channeling individuals' behavior that forms new habits (Hodgson, 2006, 2007c).

Consequently, the emergence of new habits and behavior leads to the emergence of new preferences and choices. Hence, habits serve as the constitutive materials of institutions, granting them normative authority and embeddedness (Hodgson, 2007c). In other words, it is through the formation of habits that rules of cognition and behavior become culturally and institutionally crystallized in the human mind. The deliberations, calculations, and reasonings of individuals rely on the prior formation provided by habits and, habit themselves are formed through repeated thoughts or actions (Brette et al., 2017). Nevertheless, in the same way that individuals need prior information provided by habits for reasoning, habits themselves need some stimuli to trigger the necessity for habits in the first place. For instance, a certain form of

programming is required for a child's mind to detect and react to specific stimuli so that through repeated reactions, s/he can acquire some forms of habits (Brette et al., 2017; Hodgson, 2007c).

At this point, the notion of instincts comes in. Any form of mind programming involves hereditary/genetic instincts, which have eventually evolved over a long period of time (ibid). For instance, the initial acquisition of languages requires instinctive mechanisms, even if it is conceived through social relations (Pinker, 1994). Such a dual and complementary view of habits and instincts in the formation of preferences was at the heart of the psychology of William James (1890), which was later influenced the Veblen's writings (1914) (Wood et al., 2002). Regarding the psychological and causal explanations of the effect of social structures that determines individual purposes or preferences, the individual's role is part of an explanation of two-way causality (Hodgson, 1998b, 2006).

It is acceptable that institutions rely on individuals' existence, and occasionally individuals can change institutions in a process that we can call of **upward causation**. Similarly, institutions can constrain, shape, and enable individual dispositions and behaviors, having the capacity not only to constrain or enable them but also to change motivations and preferences (Hodgson, 2003; Hodgson & Knudsen, 2004). Accordingly, institutions are social structures that involve some level **of reconstitutive downward causation**, acting upon individual habits and behavior (Hodgson, 2003, 2004a; March & Johan, 2010). Hence, institutions shape agents' aspirations (Hodgson, 2004a, 2006), while agents can promote the slow or rapid process of institutional change whenever the environment or the social context changes, implying a reciprocal causation process between institutions and individuals' behavior (Ambrosino, 2016; Ambrosino et al., 2018). This process aligns with Hodgson's upward and downward causation process (Hodgson, 2002). In other words, there is circularity in the sense that institutions change agents' behavior, while agents can drive institutional change by acquiring new shared behaviors. Through the positive feedback from agents in the process of simultaneously constraining and molding individuals' activities, institutions acquire strong self-reinforcing and self-perpetuating attributes (Hodgson, 2006; 2009).

1.2.2 Limited Cognitive Ability and Bounded Rationality

Individuals are not assumed as given in OIE; instead, it considers individuals as *"cultural animals" or "institutionalized individuals"* (Mayhew, 2000, p. 331). Similarly, Elias Khalil (1995, p. 452) claims that the attribute of old institutional economics is the assumption that

institutions determine an **agent's cognitive ability**. The notion of cognitive ability is primarily related to William James' and, later, Veblen's view that habit allows individuals to save intellectual resources, which can only be used to solve new and unique issues. According to James, *"habit reduces our consciousness or attention through which our acts are conducted"* (James, 1892, pp.138-140). Further, James claimed that the capacity of a human being to undertake various, complicated, and unique activities is proof of his (her) propensity to develop and follow habits. James's view on the economizing capacity of habit also aligns with Veblen's justification of the importance of habit in shaping individuals' behavior (Brette et al., 2017).

As Hodgson (1998a, p. 425) remarks, the ironic phrase of portraying humans as "lightning calculators" of pleasures and pains apparently implies that there is a problem with the assumption of *"homo oeconomicus"* as an agent that has prompt and unlimited computational and rational abilities. Veblen as an evolutionary institutional economist, and Simon as a Neo-Schumpeterian evolutionary economist, utilize James' rationale to explain how the actions of human beings are highly influenced and guided by habits, and they both agree with William James' view that habit helps to save intellectual resources to be used to when there is a need to handle new difficulties (Brette et al., 2017).

Simon (1976) considers habits not in opposition but in alignment with a reasonable decision. He suggests that "there is no need for a deliberate and prolonged rethinking for a decision to produce the appropriate action since habits play a prominent role in purposive behavior by allowing similar stimuli (instincts) or circumstances to be met with similar responses (reactions)." Similarly, in his book *"Administrative Behavior"* (1947), Simon argues that "habit allows the preservation of mental endeavor by exiting from the area of the conscious thinking of the situations that occur frequently." Hence, "habit allows conscious attention to be dedicated to a unique situation that demands a deliberate decision-making process" (Simon, 1976, p.88).

In line with James' view, Simon examines the tendency of individuals to save limited cognitive resources, i.e., "attention," through acquiring habits (Simon, 1976). He also noted individuals' ability of "information gathering" and "computational capacity" (Simon, 1955), implying his recognition of habit-based behavior in the process of decision-making.

Simon (1976, p. 108) also suggests that "the human pattern of choices is more similar with stimulus-response pattern than a choice among many alternatives." Such a proposition shows an extended interpretation of the notion of choice and rationality. Accordingly, Simon demonstrates two different views regarding the relationship between habits and rationality.

The first view is related to what Simon defines as rationality which is the "process" through which rational choices are made, i.e., it arises from a deliberate evaluation of the set of potential alternatives and of their consequent outcomes. Such a notion of rationality can be considered as a proto-concept of "procedural rationality" since it involves the process of deliberate choice among various alternatives. In this view of rationality, habits have a divergent role; on the one hand, they support rationality by reducing the need for cognitive resources, while they hinder rationality by increasing inattention on the other hand. Simon (1976, p. 90), in fact, asserts that often, there is a close relationship between the degree of attention and the level of rationality.

To some extent, rationality is limited by inattention. Attentiveness can also be described as "docility," which is mostly defined by the extent of attention and the circumstance within which cognitive skills and other proper ways of behaviors have become habitual or customary. Thus, such assertion highlights Simon's consideration of habit in his earlier theories of decision-making and bounded rationality. According to him, the rationality of individuals is highly bounded by behavioral and cognitive rigidities, i.e., to a greater extent by habits.

Accordingly, Simon forwards three types of rationality. The first is substantive rationality which is defined in terms of "results," meaning that an individuals' decision is rational to the degree that it produces the desired results in a way that an external observer could accept and appreciate giving some room for the role of habits. The second is "procedural rationality." which is defined by an actual behavior and decision initiated by stimuli that channel attention in definite directions, and that the response to the stimuli is partially reasoned, but mostly habitual and yet not necessarily irrational because it usually denotes a formerly used adjustment or adaptation of behavior (Simon, 1976, p. 91).

The third is "motivational rationality," which refers to the "satisficing" nature of human behavior, expressed by following relevant habits in the sense that the pursuit of which leads to satisfying results. This notion of the satisficing nature of individuals does not only rest on habits and the existence of cognitive constraints but also on a perception of the man with the notion of satiation.

Nevertheless, after 1959, Simon put aside the concept of habits and began to focus on the issue of problem-solving. According to him, problem-solving activities involve decisions that are not based on intrinsic mental processes but on organized external groups and institutions that shape and guide human decisions (Sent, 2000; Simon & Newell, 1972).

Later on, Simon (1983) proposed the notion of **"bounded rationality"** that claims individuals often act rationally when they are presented with alternative opportunity sets but their preferences and decisions are constrained by costly and imperfect information and their limited cognitive ability. He also argues that human information and knowledge are inevitably incomplete and asymmetrically disseminated due to limitations in human mental computations to be able to process, organize, internalize, and utilize information. Based on this contribution, many institutionalists undertook numerous studies on cognitive science and its relationship with institutions.

For instance, Dequech (1998, 1999, 2002) identified three kind of institutional functions that related to human economic behavior. The first is the restrictive function, i.e., they act as constraints on human economic behavior. Such function is in line with Simon's assertion of "procedural rationality." The second refers to the cognitive function and is divided into two; one is the informational-cognitive function that refers to the provision of information through institutions to the individuals, and the other is the deeper cognitive function, which also includes the influence of institutions on peoples' very perception about reality, that is, mainly on the ways people filter, select, organize, internalize and interpret information. This goes in line with Simon's "substantive rationality." The third one is the motivational or teleological function, which refers to institutions influence on the end results or destinations that people pursue, in line with Simon's "motivational rationale." In recent years, the above-mentioned cognitive functions of institutions are becoming quite common in the contemporary literature of new institutional economics.

1.2.3 Property Rights, Collective Action, and Power Relations

As widely discussed in the above section, the institutionalist view of the human agents is characterized by decision-makers who have imperfect information and hence rationality and function under an uncertain external environment (Kaufman, 2007). Such an extended and realistic model is crucial for developing an economic theory on the exchange, coordination, and production processes in economics. According to the neoclassical economic theory, the exchange process that emerges from the division of labor and specialization takes place through a competitive market illustrated by a demand and supply curve that eventually reaches an equilibrium (Kaufman, 2003). OIE adjusts this model in several crucial ways.

First, Commons (1934) proposes OIE from a political economy perspective that defines patterns of economic activity as a function of purposive individuals with imperfect information interacting both competitively and cooperatively. According to such a perspective, there are various institutional arrangements governed by various sets of rules and strategies of coordination for the production, exchange, and distribution of economic goods through rights of ownership (Kaufman, 2003). Accordingly, OIE attempts to develop an economic theory by analyzing other coordinating modes besides the competitive market system and making the institutional arrangement an active as well as an endogenous defining force instead of excluding it as an exogenous circumstance (ibid).

Further, OIE embraces market-based economics as one possible scenario and other neoclassical tools, such as marginal analysis, when it is required to deal with an issue within an institutional context and arrangement (Biddle & Samuels, 1998; Commons, 1934, p.680). Apparently, OIE envisions scarcity as a basic condition of economic life, and in order to overcome it, OIE proposes human cooperation. Also, neoclassical economists began from this stand but emphasized how cooperation can be executed efficiently in an exogenous economic order (Kaufman, 2003).

Yet, OIE asserts the priority of examining the determinants of the economic order with the assertion that natural conflict of interest among individuals arises from scarcity, as they endeavor to get enough substantial goods for survival and self-actualization. For instance, Commons (1934, p.4) reconstructs and extends the classical theory based on three fundamental problems that humankind faces: resolving conflicts, creating civic order, and managing interdependences.

Hence, instead of taking it for granted, OIE openly recognizes scarcity and assigns to collective action its proper function of mediating conflicts and sustaining order in a world of scarcity and consequent conflicts (Commons, 1934, p. 7). In property right distribution, problems in interpretation and enforcement of contracts might arise from imperfect information and bounded rationality; thus, **sovereign power** is required to resolve disputes arising from rivalry and maintain civil order. Sovereignty works through "working rules," such as social norms, ethical principles, customs, formal laws, and court decisions, that collectively shape and determine the constraints and opportunities for each person. These working rules, both informal and formal, can be simply described as "rights" or, even more importantly, as **"property rights"** because they give individuals control and ownership over scarce resources, including their physical well-being and political liberties (Kaufman, 2003; Ramstad, 1990).

Considering all working rules designed or prohibited by some collective entities having some degree of sovereignty, economics can also be considered a political science (Kaufman, 2003). It is also an evolutionary science because property rights' working rules and patterns continually evolve (Kaufman, 2003, 2007). In addition to resolving conflict and sustaining order, the sovereign power also uses working rules to facilitate production and exchange cooperation and resolve various types of disputes arising in the pursuit of individuals' self-interest in interdependent and uncertain circumstances (ibid).

Indeed, such processes do not automatically occur through an invisible hand but have to be generated by proper incentives devised by the visible hand of sovereignty and executed by means of various enforcement such as sanctions and imprisonment (Kaufman, 2003; Ramstad, 1990). Further, even if the politically appointed government bears the ultimate power, many other parties and communities in society also retain some degree of sovereignty, making and executing their own working rules. For instance, Commons (1950, p.74) points out the existence of a "hierarchy of governments," i.e., families, churches, firms, organizations, and associations.

Accordingly, both firms and markets are institutions in which a firm can also be described as an organization or "hierarchy", especially when it has several owners and employees (Kaufman, 2003). The most crucial notion to Common's institutional hypothesis is that of property rights, and the consequent concept of ownership. According to Common, property rights (1950, p. 165) are "rights to scarcity" or "rights to property," and more formally, they are defined as "all the activities which individuals and the society, in general, have freedom or restrained to do or not do, regarding the entity proclaimed as property" (1934, p. 74). Commons also claims that "the prominently secured and stabilized economic relations in modern systems of capitalism are those of private property" (1950, p. 21).

In these systems, through the working rules, the government has to define property rights for scarce resources and enforce contract laws that regulate and restrain conflicts so that an orderly exchange can proceed (ibid). In the process of designing, executing, and altering the working rules of institutions, the notion of **power** and how it is conceptualized become at the center of the analysis. Besides the collective action perspective, some writers analytically treat the notion of power from the individualistic perspective. For instance, Max Weber (1954, p. 323) describes power as *"a possibility of inflicting one's will upon the behavior and will of another individual."* Commons (1924) also adopts an individualistic conception of power and identifies an individual's "economic power" over another one. In such a context, power analysis

is exclusively restricted to individual levels such as, for instance, his/her bargaining power or capacity to achieve their goals relative to somebody else's (Meramveliotakis, 2018). Such a notion is held at the micro-level, relating to the aspiration of economic agents to maximize their utility; they exercise power to subordinate other agents' behavior and resources (Dobbin, 2005; Kaufman, 2007).

However, this form of power at the individual level cannot be fully understood without any reference to the wider social and institutional context in which it is exercised. This individualistic conception of power is also too narrow since the asymmetrical power distribution rests on the relations of power at an interpersonal level under the umbrella of collective power held by the society (Kaufman, 2007; Meramveliotakis, 2018). Hence, although an agent may have the power within an interaction situation, i.e., "the game," he or she may or may not have the power to transform the situation, i.e., to "the play of the game," which refers to the rules, and institutions, and related situations that shape cooperation or exchanges among the agents (ibid).

In this framework, there is a requirement to move beyond the "individualistic" power conception and adopt a more comprehensive approach, a systemic conception of power, which refers to a socially constructed enabling capacity for actions by individuals, groups, and classes through the virtue of their position in the network of social relations and interaction (Acemoglu & Robinson, 2008b; Meramveliotakis, 2018).

In such a framework, social relations also represent power relations, defined as a dynamic structure of subordination and domination through social forces that are never static (ibid). In this way, instead of solely functioning within social settings, systemic power also coordinates and generates the social settings themselves (Acemoglu et al., 2005b; Acemoglu & Robinson, 2008). Consequently, systemic power shapes the framework of social relations and influences property relations, implying that power is an intrinsic part of social life rooted in and determines how production, transactions, and coordination are carried out in society (Meramveliotakis, 2018). In this case, the exercise of power should be part and parcel of the process of establishing institutions and property rights.

In general, OIE is a political economy approach that analyzes how collective choices and respective power relations in societies shape and determine the distribution of endowments and the rules of the game- the nexus between property rights, collective actions, and power which is mostly taken for granted in neoclassical economics. In this sense, OIE adds a legal-

institutional-power structure to price theory and provides some contextual and realistic perspective to neoclassical economics abstractions.

Among the famous pioneers of OIE, Commons has been particularly the one to expand and restructure the economic order analysis. For instance, he supplemented price and markets theories with two forms of economic coordination: management and organizations. These concepts are broadly discussed below, mainly with respect to the concepts of transaction, coordination, and production in the economic system.

1.2.4 Transactions, coordination and production

Since people are emotional beings with bounded rationality, their behavior is mostly driven by collective moods of optimism and pessimism, making prices and markets more volatile and uncertain (Kaufman, 1999, 2006). These realistic considerations and the general institutional framework propose that the economy involves dynamic and unfolding processes constructed in real terms and conditions of frictions and uncertainties. These conditions underline the inherent nexus among property rights, legal regime, sovereign power, and economic outcomes (Ramstad, 1996; Samuels, 1989). In this regard, Commons (1934) proposed the notion of a transaction as a legally accustomed exchange of property rights instead of the physical exchange of goods in price theory.

According to Commons (1934, p. 55), a **transaction** is defined as *"a legal transfer of ownership"* and a fundamental unit of measurement in economic theory. Based on such definition and how ownership rights are transferred, Commons specifies three types of transactions.

1) Bargaining transactions occur through a voluntary agreement among economic or legal equals who trade or exchange property rights and ownership interests (Kaufman, 2003, 2007).
2) Rationing transactions are also known as administrative transactions that arise from the command of a legal superior on a legal inferior. Here, the superior power can be the government or a firm manager that issues or decides a unilateral command to transfer property rights from one person/actor to another.
3) Managerial transactions occur within firms and other institutions devoted to generating profits. More generally, they are similar to rationing transactions due to

the command system they use to transfer ownership and grant authority for a legally superior person to order a legally subordinate person within some constraints.

Both managerial and rationing transactions are authority-based but perform different functions; the former is internally used in organizations to manage labor in production where workers work for their right to money by exchanging their rights in labor power. On the other hand, leaders use the rationing transaction to set the working rules that distribute rights to participants authoritatively. The essential peculiarity of this duality is that it divides firms and markets as two separate ways of organizing the division of labor and specialization and coordinating cooperation.

Further, the distinction between bargaining and managerial transaction underlines that firms and markets are two different types of institutions concerning three dimensions (Kaufman, 2003, 2007). First, they have different functions: production Vs. exchange. Second, they operate through different coordinating mechanisms: management direction Vs. price competition. Third, they are driven by different pursuits and inner logic: managing goods production and sales for profit Vs. facilitating trade and exchange through competition. Commons (1950, p. 271) proposes the importance of "administrative economics", which studies firms' management and argues that the internal management and production within firms should be studied as widely as external markets and exchanges.

According to Commons, this institutional division between coordination modes is an intrinsic source of inefficiency in production. This is because based on the firm's price signals managers fix and apply, the price signals set in the market change and continue to change over time. For instance, Commons (1934, pp. 251-259) divides the functioning of the economy into two: proprietary as exchange and production as engineering. The former refers to the transaction as a social "man-to-man" relation since property rights are socially constructed and transferred among individuals. The latter refers to production as a physical "man-to-nature" relation since it is a technologically defined production function that transforms physically organized factor inputs into outputs.

Hence, there is a distinction between the acts of production and transaction. Through the transaction, entrepreneurs acquire ownership rights to factor goods and services or trade the ownership rights to the newly created goods and services. In contrast, through production, entrepreneurs transform the already owned inputs into new forms of outputs that have use-values (Kaufman, 2007). Similarly, to study business firms, Mitchell (1924) uses Veblen's paradox (1904) between 'money economy' and 'goods economy' as an analytical concept.

Firms' buying and selling activities represent their money economy aim to make a maximum profit, while their production activities represent their goods' production economy side that aim to increase total output (Kaufman, 2017). These two modes of economic activities are compelled by different motives, which Veblen indicates as 'financier' and 'engineer' respectively. This poses a question on price theory, since these two disjointed activities cannot be simultaneously equilibrated through price (ibid). According to Veblen (1904) and Mitchell (1924), the natural pattern is that generating profit comes first, creating an opportunity for firms to deliberately restrict production and increase the price. Therefore, the chance for a monopoly profit leads to an increasing capital concentration; increasing profits raise firms' capitalized value and create investment booms. The consequent overproduction enforces price cuts shrinking profits and hence capital, igniting the declining trend of the business cycle. This friction between money Vs. goods paradox generates a problem of structural discontinuities and hence disequilibrium, which cannot be resolved by the invisible hand of the neoclassical theory.

This also goes against the proposition that an market economy has a self-sustaining and self-adjusting mechanism. In this regard, Commons states that "It is neither invisible hand nor natural equilibrium of force that increase the prosperity of nations but the visible hands of the state" (Commons, 1923, pp. 116-117). Therefore, to stabilize the free market economy, the state must act as the 'visible hand' and create a "managed and regulated equilibrium" (Commons 1934, p. 120). Hence, the economic analysis of OIE suggests that the visible hands of the government are crucial in coordinating economic activities in the market.

In general, the propositions of OIE include the analyses of both non-market (firms) and market forms of economic organization, including the issues of management and administrative coordination in the former and markets and price in the latter, which often rests under the umbrella of the political economy of institutions. The political economy approach to institutional change, in return, is characterized by a centralized and collective-choice process in which a collective political entity explicitly designates formal rules (Coccia, 2018).

1.3 The critics and decline of Old Institutional Economics

Despite the promising scientific and institutional affirmation and great endeavor of OIE to develop a full-fledged alternative economic theory, its arguments were partly bonded with the standard neoclassical theory, conveying the judgment that no matter how solid and realistic,

the policy propositions were not powerful enough to deal with and overcome the Great Crisis in 1929 (Hermann, 2018; Rutherford, 2001; 2011). These and several other reasons eventually led to the decline of OIE since the 1930s. Such reasons can be categorized as endogenous and exogenous.

Among the exogenous factors, the OIE's failure to predict the Great Crisis in 1929 and the inefficiencies of its policy recommendations, and the parallel strength of Keynesian economics and orthodox fields of economics have contributed to the decline of institutionalism since the 1930s (Hermann, 2018).

Later, in the late 1930s and 1940s, there was an extensive development in microeconomics foundations, accompanied by a massive application of mathematics and econometric techniques in economic models, endeavoring to prove the ongoing economic assumptions (Hermann, 2018; Hodgson, 1993b, 1998b). Such models were also coupled with positivist methodologies, namely reductionism and simplification, which are quite contrasting with the OIE's pragmatist methodology of reductivism and realism (ibid).

Another exogenous factor that contributed to the decline of OIE is the rise of McCarthyism which pushed forward a growing movement in favor of the formalization of economics (Hermann, 2018). The great significance granted to **formalism** can be viewed as an aspect of the broader proposition of a positivist trend in social sciences claiming that only directly observable behavior is considered as "scientific", and it is only one that can be "measured" in a more unbiased and accurate way (Hermann, 2018; Rutherford, 2011). In contrast, the OIE pragmatic conception of behaviorism claimed that it is required to consider the external environment and the institutional settings under which individuals' functions; instead of focusing only on the directly noticeable and 'measurable' behaviors (ibid). In this regard, in the post-WWII period, the humanistic and institutional perspective lost ground in economics, and the notion of 'homo oeconomicus' rose, constituting a major element in the decline of the OIE's standpoint of 'institutionalized humans' (Rutherford, 2001).

Among the endogenous factors causing the decline of OIE, there was the adoption of the plurality of methodologies: statistical and econometric estimates accompanied by case studies, broader historical analysis, focus groups on specific problems, and active involvements of actors under examinations (Hermann, 2018; Rutherford, 2011). One related consequence of this broadened analysis is its demand for a pluralistic interpretation of the analyzed phenomena. There are also other possible drawbacks to such methodology; for instance, neoclassical economists pointed out that putting numerous factors in the analysis would induce uncertainty

and complexity (ibid). Further, they argued that the construction of theories should be data-independent, in the sense that theory should drive the empirical analysis and not vice versa. On the biases of such premises, neoclassical proponents attacked OIE as a discipline lacking a solid theory and being solely data-driven. The institutionalists' reaction to these attacks was not quite effective. For instance, regarding the significance of quantitative analysis, Mitchell (1928) claims that social and economic phenomena can never be fully investigated and understood solely with the accuracy of a laboratory experiment without considering the whole setting in which the phenomena happened. Nevertheless, his claim that the qualitative aspects of phenomena can be sufficiently investigated through specifying some measurable proxy weakens and complicates his reasonable emphasis on the significance of quantitative analysis (Hermann, 2018). Due to its failure to demonstrate the fact that theory should be confirmed by empirical evidence, OIE could go so far, and contrary to its long-sighted agenda, OIE did not fully realize its oath and ambitions (Hodgson, 1998; Rutherford, 2001; 2011). During its flourishing time, OIE provided several significant contributions that created and employed various psychological notions to explain individuals' economic behavior (ibid). However, despite their innovativeness and relevance, these contributions rarely went beyond intuitions and propositions (Hermann, 2018; Rutherford, 2011). One reason for this was the substantial fragmentation of positions in the institutional field, despite many relevant common perspectives.

There was a limited synergy between the main institutionalism field and the remaining fields; each contribution seemed to follow its own path. Due to all the reasons mentioned above, OIE experienced a period of gradual decline that extended from the 1930s to the 1980s, after which a new phase – the New Institutional Economics- began to flourish.

1.4 New Institutional Economics

By taking back the place from the old American institutionalist, which had been the prevailing economic agenda in America in the late 19th and the early 20th century, neoclassical economists established their dominance. During the post-World War II period, however, the limitations and inability of neoclassical economics became increasingly evident, and some of its basic assumptions were put under question, especially in the research activities of modern institutional economics. As a result, the so-called New Institutional Economics (NIE hereafter) sought rises in the 1980s and 1990s, which developed theoretical tools, i.e., the concept of

transaction costs that enables the analysis of institutions to be undertaken in a more compatible way with mainstream economics (Langlois, 1986; Harriss et al., 1995). In this sense, the NIE builds on the standard neoclassical theory by modifying and extending some aspects, especially the ones related to institutional analysis (North, 1995). This is executed mainly through utilizing the instrumental rationality assumption and by identifying institutions as "humanly devised constraints" on both human behavior and the functioning of markets towards natural order (Chang & Andreoni, 2019).

The foundational blocks of the NIE comprise the traditional assumptions of neoclassical theory, such as self-interest principle, methodological individualism, and market mechanism (Hodgson, 1993b; Ménard & Shirley, 2011; 2014; Meramveliotakis, 2018). Indeed, its acceptance of methodological individualism is what sharply separates it from the OIE while unifying it with neoclassical economics in terms of the basic methodology and analytical objects (Dequech, 2002; Richter, 2005; Spithoven, 2019). Nevertheless, NIE is different from neoclassical economics mainly because it does not assume institutions as given and exogenous entities but puts them at the heart of the economic analysis and mainly seeks to demonstrate that *"institutions do greatly matter."*

Accordingly, NIE can be defined as a multidisciplinary approach incorporating economics, law, organizational theory, anthropology, sociology, and political science to fully investigate and understand the institutions of social, economic, political circumstances (Klein, 1998; Richter, 2005). Further, NIE mainly emphasizes the role of institutions, micro analytics of firms, organizations, markets, and their implications for public policy, providing dynamic instead of static explanations of economic evolution and using interdisciplinary analysis tools (ibid).

NIE is also more open in accepting certain formal approaches, inductive reasoning, and main assumptions of neoclassical economics, with particular reference to scarcity, competition, equilibrium framework and the maximization approach (Ambrosino et al., 2018; Furubotn & Richter, 2008; Ménard & Shirley, 2011, 2014; Meramveliotakis, 2018). Yet, it radically differs from the mainstream approach since its rejects the assumptions of perfect information in the market, perfect rationality of individuals, zero transaction costs, and full certainty, and contrary to the static models of standard neoclassical economics, it underlies the search for a model for dynamic economic systems and changes, which represents an important exception and implies that NIE might progressively transform the standard economic theory (Meador & Skerratt, 2017; Ménard & Shirley, 2014).

The roots of the remarkable divergent pinpointed by NIE mainly emerged from the major intellectual contributions of Ronald Coase, Oliver Williamson, and North Douglass, who contributed to the conceptual development of the "golden triangle": transaction costs, property rights, and contracts, which are considered to be NIEs' key concepts (Ménard & Shirley, 2011, 2014).

1.4.1 Transaction costs

The notion of transaction costs was born in the United States in 1931-32 when Ronald Coase was attending a degree program in commerce. Coase was moved by his firsthand meetings with people in business laboring to survive the difficulties posed by the Great Depression. He analyzed their experience based on Adam Smith's invisible hand theorem that price systems coordinate the activities of competitive firms in the market (Coase, 2005). Such analysis later led him to introduce the idea of transaction costs that primarily arises from his investigation of the origin of firms and the reasons behind their existence. He also posed several related questions, and in particular: why don't all exchanges take place through the market?

While answering such questions, Coase argued that the failure of markets to organize some transactions efficiently leads to the emergence of firms. People establish firms when the costs of carrying out the transactions through them are lower than through the market. Coase, in fact, pointed out that there are costs to make transactions in the market, such as finding someone trustable to trade with, getting information on a commodity quantity and price, handling bargaining, drawing up, monitoring, and enforcing contracts. According to Coase, by eliminating the process of bargaining with multiple owners of factors of production, a firm can reduce the related transaction costs by replacing them with hierarchical coordination, which, in turn, might cause an increase in internal coordination costs.

Coase's assertion was a sharp divergence from mainstream economics, which had supposed that technology, not transaction costs drive the choice between the market and the firm and decisions about the size and production of firms. Steven Cheung (1983) later enhanced this concept by specifying some occasions in which transaction costs might be lower in firms than in markets. For instance, Cheung pointed out that the specification of prices is costly when the number of transactions is high, consumers lack detailed information regarding the use of components or their exact contribution, measuring entities and changing activities is difficult, and differentiated contributions are needed (Ibid., p. 9).

Coase (1992) demonstrated further why the notion of 'transaction costs' is prominent to NIE. According to him, the organization of transactions either in firms or in the market inevitably in incurs costs, which in turn determine what type of goods and services in what quantity can be produced and the economies' capacity to take advantage of and maximize the division of labor and specialization in their systems.

In this regard, Coase claimed that transaction costs profoundly affect not only the size and activities of individual firms, but also of the entire economy. For many decades, Coase's insights on transaction costs were largely abandoned, due to their contradiction with the major assumptions of mainstream economics. For mainstream economists, a firm is a form of an organization or a production function that transforms factor inputs into material outputs and it is economies of scale that define its boundaries, while the price mechanism costlessly coordinates its purchases and sales.

Here, Coase argued that potential externalities can be internalized through bargaining, when different economic parties could negotiate costlessly. For example, a farmer suffering from pollution generated by a factory in the neighborhood can pay the factory owner to manage the pollution in a better way and reduce it. Similarly, if the existing economic institutions provoke a disproportionately higher cost for a particular group while benefiting another one, the two groups can negotiate to remove or transform the existing institutions. Such an idea, later developed by George Stigler (1989) as a Coase Theorem, was actually not an accurate representation of Coase's argument, but several other economists emphasized it and proclaimed its advantages, usually twisting Coase's concept of transaction costs.

In fact, Coase was not by any means claiming that transaction costs are not necessary or promoting the world of zero transaction costs; instead, he proposed the theory as a steppingstone towards positive transaction costs in economic analysis (Coase 1992, p. 717). Nevertheless, it was not easy to include the concept of transaction costs in a general economic theory except through transforming neoclassical economics. This is because the concept of transaction costs was quite obscure, in particular regarding the specific factors determining the choice between the firm and the market (Williamson, 1998). Williamson (1989) founded a school of thought, *"Transaction Cost Economics,"* that operationalized transaction costs by specifying the behavioral assumptions accountable for transaction costs and extending their contractual implications. Starting from his position and the subsequent development, we will focus on the second and the third main concepts of NIE- property rights and contracts.

1.4.2 Property rights

The second essential concept of NIE, property rights, was also a piece of Coase's argument against the mainstream economics assumption that what people trade are explained in terms of virtual or physical exchange of good and services. Instead, Coase claims, what people actually trade are the rights to conduct certain activities (Coase, 1959). Similarly, Armen Alchian (1965) defined property rights *as "a set of rights to undertake permitted actions to utilize, transfer, or otherwise entertain or exploit the property purchased."* Regarding the ways how these rights are often endorsed, Coase claimed that the legal system establishes property rights with their rights and duties. In contrast, Alchian argues that rights are more often enforced by informal social customs and norms than they are enforced by formal legal law. Elinor Ostrom (1986) also enhanced the idea of property rights by investigating how community governance can avoid the unfavorable effects of inadequately specified and enforced property rights. Ostrom applied Coase's view and argued that for **common property** resources, using markets can be costly. Instead, Ostrom claims that for making and enforcing rules where the boundaries of the resources and users are clearly demarcated, enforcement and monitoring by social institutions, i.e., tight-knit and strong social norms, produces greater outcomes than the market the state regulation, or private ownership.

In contrast, North (1990, p. 36), after defining property rights as a set of opportunities open to individuals and defined by an array of formal and informal rules, he continues to argue that the formal rules that are specified and enforced by the state are more effective to enforce property rights and related contracts. According to him, self-enforcement of contracts among parties would be ideal, but it is often not promising and successful (North 1990, p. 35). Hence, the state usually functions as a third party and uses enforcing mechanisms to enforce agreements and contracts (North 1990, p. 58). Nevertheless, the legitimacy given to the state may be used by some political elites on power to seek their own interest at the cost of the public interest (North 1990, p. 59). In other words, he argues that to stabilize and maintain power, political elites often implement a property rights structure that is advantageous for themselves or for groups closer and beneficial to them, but not for the overall economic efficiency. A possible solution for this unfair distribution of property rights and unjust resolutions of contract disputes in societies is the establishment of inclusive and democratic governments.

1.4.3. Contracts

Coase (1937) also introduced the idea of the contracts in his examination of how firms vary from markets, particularly in the way they are specified. The institutionalist view of contracts sees them as unwritten or written agreements between parties, and it is based on two assumptions. The first is that contracts are never perfectly enforced. The second is that contracts are always incomplete. These two assumptions were gradually evolved along separate paths that conform to the two major branches of NIE. The first branch is **New Institutional Economics of History (NIEH hereafter),** which is mainly pioneered by North Douglass, emphasizing the role of contracts and the requirements of various institutions for their enforcement, particularly the political system (North, 1981). This branch was later developed into a theory based on detailed analyses of the role of political power in safeguarding or manipulating property rights and individual rights (Greif, 2005; North et al., 2009; North & Weingast,1989). Despite the fact that property right protection by the state might reduce private costs, it also invites state encroachment and determines how resources are distributed and hence the path of economic convergence or divergence.

The second branch is represented by **Transaction Cost Economics (TCE hereafter)** pioneered by Oliver Williamson (1971), who waved the second assumption of incomplete contracts, and, in his formulation, he pointed out the concept of **opportunism**: parties of exchange might decide not to cooperate if the payoffs are greater. In this regard, Williamson claimed that firms emerge as an efficient reaction mechanism to such contractual issues that challenge markets; specifically, in relationship-specific investments, there is a concern that there may be ex-post opportunism. Accordingly, he described a contract as *"an agreement between a supplier and a buyer with three terms of exchange: asset specificity, price, and safeguards"* (Williamson, 1996, p. 377).

In contrast to Williamson's hypothesis, the mainstream theory assumes that complete contracts and zero transaction costs are crucial for a perfectly functioning market system and to prevent uncertainties and conflicts. In other words, complete contracts make exchange frictionless and timeless and allow the neoclassical theory to be institutionally and historically empty and neutral. Nevertheless, it is impossible to foresee all the circumstances and to point out valid terms and conditions for each of them, and hence it is possible to argue that all contracts are inevitably incomplete (Williamson, 1979).

There is also a high probability that incomplete contracts and wrongly specified property rights might cause market failures and inefficiencies in exchange for potential externalities

(Schmid, 1987). There are many other contract difficulties, i.e., hold-up effects, moral hazard, non-cooperative bargaining, and principal-agent problems. Institutions have a relevant role in dealing with the difficulties mentioned above. Davis and North's (1971) distinction between the 'institutional environment' and 'institutional arrangements' is useful to fully understand the role of institutions in markets and in firms' internal and external arrangements.

The **'institutional environment'** is the institutional environment constraints on the functioning of both firms and markets, or 'the rules of the game,' that governs the players of the game (individuals, firms, organizations). Thus, distinction marks boundaries between institutions and organizations because there should be a differentiation between the rule and the player (North (1990:4). In this regard, institutions (the rules of the game) set up the incentive structures of the game from the firms, entrepreneurs, and organizations (the players). Nevertheless, organizations themselves are heterogenous entities composed of agents with various interests, implying the need for internal rules of interaction.

This, in turn, requires the second arrangement, i.e., the institutional arrangement or governance structure. There is also a distinction between formal and informal rules within internal rules. The assertion is that institutions include formal constraints, i.e., laws, rules, and constitutions," and informal constraints, i.e., norms of behavior, customs, conventions (North, 1994: 360). In other words, institutional rules can be both formal and explicit, i.e., laws, property rights, and constitutions, or informal and implicit, i.e., norms, customs, and social conventions. These institutions are the two-way causal byproducts of both the social structure and individuals' beliefs, purposes, and preferences.

In contrast, **institutional arrangements** - what Williamson (1985, 1996) calls 'governance structures' - are specific guidelines created by trade partners to coordinate, moderate and manage certain economic relations. For instance, business firms, nonprofit organizations, and long-term contracts are institutional arrangements/governance structures. The following section discusses the governance structure or the institutional arrangement of firms, how it is organized and how it deals with internal and external difficulties.

1.4.4 Transaction cost economics and governance structure

TCE represents an approach to a governance structure that emphasizes governance transactions aiming to guard the parties involved in transactions from various hazards related to exchange. The type of transactions determines the relevant governance structure because

different situations require different forms of governance (Klein, 1998; Ménard & Shirley, 2011).

The governance structures of transactions differ by the extent of relationship-specificity of engaged assets, by the amount of uncertainty about other parties' actions and the future in general and by, the frequency of the transaction occurs, and the complexity of the trading arrangement (Klein, 1998; Ménard & Shirley, 2011). Each end matters to identify the appropriate governance institution, although the first - **asset specificity** - is specifically crucial. Accordingly, Williamson (1985, p. 55), there are a variety of tangible relationship-specific investments, i.e., investments in physical and human capital, and intangibles, i.e., investments in capabilities and firm-specific knowledge.

According to Menard & Shirley (2011), the function of governance structures presents itself in a line of a continuum. In one extreme, it is possible to locate the pure expression of the market, where easy transactions, i.e., basic item sales, take place. Market prices are powerful determinants of the incentives to utilize profits in such situations. Nevertheless, when product and input markets are thin and relationship-specific assets are at stake, investment decisions through bilateral coordination may be advantageous, and joint ownership of the assets may be more efficient than acquiring them through the market.

To the other extreme of the continuum lies the hierarchy of the fully integrated firms, within which trading parties are under a unified umbrella of control and ownership. TCE assumes that such hierarchies grant higher protection for specific investments and provides relatively efficient mechanisms to react to changes when there is a requirement for coordinated adaptation. Furthermore, there are different 'hybrid' modes between the two extremes of market mechanism and organizational hierarchy, i.e., partial ownership arrangements and complex contracts.

A strand of literature (Klein, Crawford, and Alchian, 1978; Williamson 1975, 1985, 1996a; and Hart and Moore, 1990) claims that the choice to organize transactions either within the firm or through an open market - the decision of “make or buy” depends on the relative costs of external and internal exchanges (Klein, 1998; Ménard & Shirley, 2011, 2014). The market system entails certain costs, such as finding out the applicable prices, bargaining, and contract enforcement. The owner can reduce these transaction costs within the firm by coordinating these activities himself. However, the internal organization brings other kinds of costs related to issues of information flows, performance evaluation, incentives, monitoring. In general, all potential modes of economic organization inevitably incur some sort of cost.

In this framework, the nature of the firm is specified by the relative costs of organizing transactions under alternative governance structures. In contrast, neoclassical economists treat the firm as a production function or, more specifically, as a set of machinery, workers, capital, and technology dumped into a black box to produce outputs and the consequent profits (Roe, 1994). New institutional economists see the firm instead more as a management structure: if its managers can effectively coordinate the firm's activities, the firm succeeds, and if they are unable to effectively coordinate employees and inputs and correspond them to existing technologies and markets, the firm fails (Klein, 1998; Ménard & Shirley, 2011). Moreover, if the relationships among the firm's directors, employees, managers, and shareholders are dysfunctional, the firm may slip into problems such as moral hazards (ibid).

For instance, the moral hazard also known as- **agency theory** is related to the 'separation of control and ownership' in large firms. Big firms and corporations are usually managed by salaried managers but not by owners or shareholders. Herein, the personal goals of managers often vary from the owners' goals, and managers may prioritize their own goals. Hence, they may apply their discretion to pursue personal objectives such as personal growth and gains at the expense of shareholder benefits and values. Although competition imposes discipline and limits managerial discretion, the fundamental mode of conflict between managers and stakeholders is known as the principal-agent problem, which can prevail in the firm's internal organization.

Such model is also known as agency theory, which examines the designing process of ex-ante incentive and compatible mechanisms to minimize agency costs in the occurrence of moral hazards related to agents such as malfeasance (Jensen & Meckling, 1976). According to Jensen and Meckling (1976, p. 308), agency costs are defined as the sum of agents' bonding expenditures, principals' monitoring expenditures, and the related residual loss. The related residual loss occurs when the agents' actions are unobservable, and hence principals cannot provide perfect incentives for agents. This situation might end in losing the potential gains from trade. Further, when the principal assigns some tasks to agents, for instance, producing output, he/she only has an imperfect and limited agents' performance signal such as effort. The signal-extraction problem is usually reflected by the agency problem: it is difficult to identify the extent to which the observable output comes from the agent's effort and to what extent other factors that are beyond the agent's control contribute to the final output (Lucas, 1972).

Accordingly, the firm itself is not the subject of analysis in the agency literature. In this regard, NIE scholars, such as Alchian & Demsetz (1972) and Jensen & Meckling (1976),

present the 'firm' as a nexus of contracts among managers and employees, owners, and managers, firm and its customers, partners and suppliers. Therefore, the firm becomes a legal fiction or entity that focuses on a complex process within a framework of contractual relationships in which the conflicting objectives of individuals are brought into equilibrium (Jensen & Meckling, 1976). The primary area of interest in this regard is the extent to which different contracts can mitigate such conflicts and frictions, where the firms' boundary is only a secondary area of interest. In this regard, the governance structure is also identified by its focus on incomplete contracts because an economic organization incurs costs due to complex and hence inevitably incomplete contracts.

For such complex transactions, such as purchasing and installing specialized and advanced equipment, requires a more sophisticated contract which will commonly be incomplete since it can foresee solutions only for a limited number of possible future contingencies. Examples of such contracts are relational contracts, i.e., agreements describing a mutual set of principles and goals that manage the relations represent complex and possible incomplete contracts (Goldberg, 1980). Alternative examples are implicit contracts, the unstated and unspecified agreement that is assumed to be apprehended by all parties involved in the contract. Further, following Simon's (1976) interpretation of human action as guided by limited rationality, Williamson associated contractual incompleteness to limited human cognitive abilities and individuals' bounded rationality.

There are several risks related to contract incompleteness, especially when there is an unexpected change in the circumstances and when the initial governing contract may no longer be applicable. Unforeseen contingencies require adaptation capabilities that constitute an additional contracting cost, and failure to adapt provokes maladaptation costs (Williamson, 1991). In addition, when there is unexpected circumstantial change, agents may be exposed to a potential moral hazard, especially in specific assets investments, because their trading partners may try to expropriate the rents arising from those specific assets.

Such situations create an underinvestment problem due to the attempt to anticipate the customer's behavior: even though the investment would make the relationship more profitable for both sides. Particularly, without protection for related contingency, the supplier may be hesitant to install the business machinery. Options such as vertical or lateral integration can be protections to safeguard rents arising from specific assets, and a merger can eradicate any antagonistic interests. Other options include partial ownership agreements (Pisanoet al., 1988), and long-term contracts (Joskow, 1985).

Given the details of contractual relations, various governance structures may be deployed for different contracts and transactions depending on what best controls the underinvestment issue. In addition, other contractual problems can emerge from several aspects: weak property rights and measurement difficulties, bilateral dependence, weaknesses in the institutional environment, and related intertemporal (Williamson, 1996b, p. 14). All the above-mentioned contractual problems have the possibility of creating maladaptation costs, and hence, agents seek to address this issue by corresponding the applicable governance structure with the specific type of contract and transaction they are undertaking. Therefore, TCE can be regarded as the study of applicable institutions of governance for various types of transactions and respective contracts.

1.4.5 New Institutional Economics of History and the institutional environment

In his construction of NIEH, North Douglass strives to define the various types of structures and performances of different economies over time (North, 1981, p.3). He starts from the proposition that human interactions and cooperation require institutional rules and constraints of behavior that determine the opportunity set of individuals (North, 1990, 67). Especially in the world of uncertainty, imperfect knowledge, and positive transaction costs, the institutional framework under which agents operate plays a prominent role in the economic structure and performance of countries (North, 1990, p.69).

In general, the institutional environment creates the framework in which human actions and interactions occur and where institutions reduce uncertainty and the consequent cost by providing a structure to the socio-economic and political system (North, 1990, p. 3).

Particularly, the NIEH analyses of "institutional environment" aims at developing a general theory based on the interaction between polity and economy by applying the economic theory of politics to the economic history of countries. The influential NIEH approaches, the limited-access orders /open-access orders were developed by North et al. (2009). They went ten thousand years back and started their analysis from the situation in which a few groups of powerful elites discovered that instead of fighting each other, they could increase their productivity and rents by sharing power. According to North et al. (2013, p.19), stability can be secured when elites identify and endorse institutions that incentivize powerful groups to unite and cooperate. Consequently, the elites formed alliances that involved military experts who could protect non-military elites, i.e., traders and the clergy. In this form of monopoly,

they formed on violence, the elites could limit the access of outsiders to valuable resources, i.e., capital, r and land, and valuable activities, education, and trade, ensuring their privileged access to rents (Ibid., p. 30). These rents, in turn, grant the elites an incentive to persist in abiding by their agreements to restrain violence, constructing a stable equilibrium. North and his co-authors call this **result limited access orders (LAO hereafter),** a system that still persists until the present day.

It starts with being the fragile LAO, where violence is still the major threat because the prevailing coalition stumbles to maintain its power; the analogy is that capacity of the coalition as government and the collective commitment is minimal. At the basic level of LAO, while continuing to suppress rival factions, the ruling elite transits towards the mature LAO: where the coalition becomes strong enough to become a government that is relatively well-established. It also increasingly and gradually incorporates complex organizations and associations involving firms, banks, and ministries, and they start to join the circle of the dominant coalition, which arises as government (North et al., 2013, p.11). It eventually reaches a point of threshold, which induces incentives to provoke the final stage of transition from LAO to **open access order (OAO),** where the majority of the population participates in both the decision-making process and utilization of valuable resources.

North et al. (2013) make important contributions; besides a politically rounded understanding of rents, they present a more dynamic portrait of elite bargaining, given that they foresee consistent fluctuations in political power shifting the LAOs proposition, both forward and backward (ibid, p.346). As discussed above, in the system of LAO, ruling elites can make institutions more beneficial to their limited economic interests; for instance, property rights protection may not be granted to all firms or entrepreneurs equally. Hence, firms connected to the elite may benefit from better quality institutions than firms that are not. This can hamper economic growth, especially when investment in new and more productive activities is restricted because the elite's interests are entrenched in low productivity activities. A limitation of competition induced, for instance, by restricted entry can hinder productivity and thus equally reduce the magnitude of growth. Economic growth, in fact, may directly contradict the interest of the ruling elite: for instance, the emergence of an industrial sector that pushes up wages may reduce the rents of the elite, and hence the elite itself might create incentives to slow down the development of the industrial sector, which in turn, hampers economic growth.

1.4.6 Critics on the New Institutional Economics views of Institutions

In the NIE, an important thing either for firms or an economic system is to reduce transaction costs. However, there is no explanation for how goods can be produced prior to their transaction and how production processes can be enhanced (Andreoni & Chang, 2019). As mentioned before, the Coase theory (1937) claims that "transaction costs define the steps of the production process to be arranged through the institution of the firm, while production costs of firms determine the technical substitution choices" (Langlois, 1998, p. 186).

Thus, the emergence of the firm is related to a better way of performing the production process and reducing the cost. However, as crucial as firms are as a production function and as ways of reducing transaction costs, they can also be the most efficient and effective vehicle for forming and developing productive capabilities and learning-in-production (Andreoni, 2014; Andreoni & Scazzieri, 2014). The NIE recognizes knowledge and technology, but there is limited recognition of the need of having institutions that support firms to acquire, adapt, and improve their production-related knowledge (Andreoni & Chang, 2019). In addition, institutions are required to enhance firms' technologies, managerial techniques, organizational capabilities, and worker skills since firms conduct these learning activities and hence promote collective productive capabilities (Andreoni, 2018).

The NIE recognizes the importance of certain inputs of the production system with a public goods nature, such as infrastructure investment in basic rather than commercial research (Andreoni & Chang, 2019). However, the government is considered as the sole entity to provide these goods, and the diverse institutional forms that are able and responsible to provide such inputs as public intermediaries, government ministries, public-private partnerships, cooperatives, and industry associations are not recognized (ibid). NIE also assumes the market as a spontaneous economic phenomenon that emerges from the universal self-seeking individuals to exploit gains from exchange and trade (Chang, 2002). Given the recent development of the NIE, the market is an economic institution itself, and the firm is also a non-market institution. However, the market is an institutionally complex entity, and thus, to understand how it works, it is necessary to understand a wide range of both informal and formal institutions that influence it and are influenced by it. Many of these institutions that would need to be included in the market analysis remain invisible because the rights-obligations structure that holds them is considered an inherent element of spontaneously ordered free markets.

Chapter two

STRUCTURAL CHANGE; MODELS, APPROACHES, AND IMPLICATIONS FOR DEVELOPING COUNTRIES

2.1 Introduction

Structural change- also known as structural transformation, is a gradual process through which resources relocate from one sector to another (UNECA, 2017). Herrendorf et al. (2014, p. 855) define structural change as a process involving the reallocation of productive resources across sectors, mainly agriculture, manufacturing, and services. Empirically, structural change mainly refers to changes in the GDP share of value-added and the total employment shares of various sectors (UNCTAD, 2016). What is commonly expected is that the distribution of GDP and total employment across sectors will follow the same pattern. Such a pattern starts with (1) decreases in the output and employment share of agriculture and a corresponding increase in the manufacturing sector. (2) consequent increases in the shares of services, and eventually a decrease in the weight of manufacturing in terms of both output and employment (Jha & Afrin, 2017).

According to Busse et al. (2019), the major causes of labor reallocation from the agriculture sector towards manufacturing is the correspondent increasing population and surplus labor in rural areas. The subsequent migration towards urban areas is associated with higher income jobs in manufacturing and services compared to the rural ones. In this sense, Timmer et al. (2012) explain structural change as a process through which (a) the GDP and employment share of agriculture decreases, (b) overflow of migration from rural to urban centers, (c) the replacement of agriculture-based economy into an industry-based economy (d) demographic changes represented by death and birth rates decrease.

Such a holistic view considers economic growth as a process involving changes in the sectoral composition of various sectors towards economic advancements (Jha and Afrin, 2017). Accordingly, structural change is crucial to inclusive and sustainable economic growth (Totouom et al., 2019). In other words, the reallocation of sectorial output, productivity, and

labor out of traditional sectors to modern sectors is one of the major determinants of countries' economic development (Carraro & Karfakis, 2018; Herrendorf et al., 2013). Nowadays, the notion of structural change has experienced a resurgence of interest (Busse et al., 2019; Carraro & Karfakis, 2018; Herrendorf et al., 2014; Rodrik, 2014a), demanding a refocus on the deeper understandings of the reinforcing mechanism between economic growth and structural change (Monga, 2012).

The interdependence between economic growth and structural change implies that they are intertwined together and reinforce each other for several reasons (Monga, 2012). First, growth sustains increases in goods' supply, not just the consequent dynamics of higher demand and supply levels. Second, growth reflects countries' diversification process, in the sense that even resource-dependent counties can eventually manage to use the income generated to develop a broader set of export products.

Third, technological upgrading is the fundamental driver of economic growth, which in turn requires advancement in factor endowment (labor and capital) through sectoral and macroeconomic policies that facilitate physical and human capital accumulation. Fourth, there is a need for a conducive business environment to ensure technological upgrading through entrepreneurship and innovation. A conducive business climate, in turn, requires consistent rethinking, redesigning, and configuring policy instruments, institutional arrangements, intellectual frameworks, rules, and regulations.

This understanding of growth in the glace of structural and institutional settings sheds light on productivity growth and factor accumulations as drivers of the dynamics of economic development (Monga, 2012).

In this regard, Kuznets' (1971) definition of a country's economic growth seems a good starting point to analyze the interrelationship between economic growth and structural change. He points out changes in technology, institutions, and ideology as drivers of a long-term increase in the capacity of supplying increasingly diverse economic goods. The definition also predates the significance of globalization, such as the importance of international trade as an essential source of growth and the interlinkages and spillover effects that openness creates in economies (Monga, 2012). In this regard, structural change also implies the dynamics in countries' production structure and trade compositions that create social changes, welfare improvements, and changes in consumption and spending patterns (Carraro & Karfakis, 2018).

McMillan & Rodrik (2011) suggests that the countries that ensure poverty reduction and economic growth are those that diversify their production structure away from primary

products to the modern industrial sector (see also Haraguchi et al., 2019; M. McMillan et al., 2014; Nicet, 2020). Steering an economy out of traditional low-productivity activities to 'modern' high productivity sectors has been the common way of gaining sustained productivity that determines economic development (Herrendorf et al., 2013; Monga, 2012). The shift of resources to activities with higher value-added per worker is a gradual and non-automatic process in poor countries because such activities are also those with a higher capital to labor ratios (Monga, 2012).

An opposite position is represented by the neoclassical view of Solow (1956) and Swan (1956), who claims the independent nature of economic growth from the dynamics of the internal economic structure. However, recent contributions claim that these views are not mutually contradictory to the structural change view of economic growth, and they incorporated them into the analysis (Jha & Afrin, 2017). For instance, Echeveria (1997) demonstrated a two-way causality between economic growth and changes in sectorial compositions of output through a dynamic general equilibrium model. He also claims that structural change is a "key driver" of sustained growth and human development but not an "unimportant by-product" of growth (see also Berg et al., 2012; MacMillan & Rodrik, 2011). Berthélemy (2017) presents a model in which low-income countries are trapped in the traditional sector because their low income hinders the adoption of modern modes of production. Severe poverty is a major obstacle to the reallocation of labor from low to high productivity sectors because shifting into different activities has a cost that the poorest cannot afford. Such conceptualization is quite crucial to the understanding of the dynamics of structural change in developing countries (Jha and Afrin, 2017).

2.2. Structural change: the Development Economics perspective

In developing countries, ensuring sustainable economic development is the utmost desire and pursuit of policymakers and governments. Economic development is a complex process that comprises changes in the economic structure, such as technology enhancement and industrialization, which accompany economic growth (Chenery et al., 1986; Marjanović, 2015; Syrquin, 1988). Further, economic development is also characterized by an improvement in the quality of an economy, besides the quantitative growth of its structural elements. Besides the individual changes of its elements, the dynamics in the economic structure involve the

relationships among the elements (Marjanović, 2015). The complex nature of economic development has eventually led to the rise of development economics in the 1950s. The discipline involves both theoretical and empirical studies that deal with various aspects of the dynamics of economic structure in developing countries (Chenery, 1979; Syrquin, 1988). The ultimate goal of the discipline has been to identify the social, cultural, institutional, political, and economic mechanisms related to both the internal and external structure of economies, hindering economic transformation and development (Contreras, 1999; Marjanović, 2015).

In order to achieve this goal, development economics uses micro and macro approaches to analyze the economic structure. According to Syrquin (1988) and Marjanović (2015), the micro approach is solidly anchored in economic theory, emphasizing how economies and markets function and particularly how they allocate resources, such as how income is generated and distributed. In contrast, the macroeconomic approach is more concerned about economic history and hence perceives economic development as an interdependent process of structural change reinforcing growth. Therefore, structural adjustment is studied with much serious complexity, addressing sectoral and inter-sectorial arrangements such as agricultural transformation, urbanization, industrialization, and servitization, which are, according to Kuznets, the major components of modern economic growth (Syrquin 1988; Marjanović, 2015). For this purpose, the macro approach essentially uses comparative studies emphasizing the historical evolution of the advanced economies in order to draw a lesson for developing countries, particularly on issues related to structural changes and growth.

However, development economics applies both micro and macro approaches based on continuous and dynamic ways of thinking and evaluations in order to create a deeper ground for understanding what could actually drive economic development. For this reason, development economics has no universally accepted paradigm or doctrine. Accordingly, economists in this discipline consider themselves as model builders, as they examine and recommend various models of economic growth for the governments of developing countries (Chenery, 1979; Chenery et al., 1986). Therefore, they believe that there is no single unique model that can be universally applied in every country at the same time, given the heterogeneity of developing countries in terms of their context and internal production structure.

According to Chenery (1979) and Syrquin (1988), the trend is to combine relevant concepts of traditional economic analysis with lessons derived from studying the specific region or country's historical and contemporary development experience under inquiry. The approach has been to start from the already developed economic theories and then modify or

expand them to make them functional in the context of developing countries. The resultant theories have been used to explain the economic gap existing between developing and developed countries on the one hand and the structural gap between industrialized and non-industrialized countries on the other hand. Besides, these theories are deliberately designed to foster and sustain development practically through the formulation of economic and development policies (Chenery, 1979; Chenery & Taylor, 1968). In this respect, economic policies can have either a positive or negative effect on the changes and dynamics of economic structures depending on the context in which they are functioning. The next section discusses the various models on the internal structure of counties' economies.

2.3 Models of structural change

Structural change is usually represented by changes in the sectoral composition of output, employment, and labor productivity, which are also the main drivers of modern economic growth. Many scholars (such as Adelman & Morris, 1967; Kuznets, 1971 and Syrquin, 1988) also acknowledge the wider framework of structural change, including changes in technological progress and institutions. According to them, both in developed and developing countries, there are constant changes in their economic structure, mainly induced by technological progress and by the aspirations to achieve a higher competitive advantage in the international market (Marjanović, 2015).

All these changes have a reciprocal relationship with increasing income and the change in the proportion of demand and supply, and they affect and are affected by sector and macroeconomic policies (Chenery, 1960). The structural change, in return, causes socio-economic outcomes that guide different social-economic processes. These consequences in the economic structure are captured by various models in the development economics literature. Based on their assumptions on the dynamics of preferences, sectoral production structures, and technologies, structural change models are categorized in two main perspectives: the demand side (income-effect models) and the supply side explanations (price-effect model).

The demand side perspective emphasizes changes in the composition of the demand. According to this perspective, demand changes assume differences across sectors in terms of income elasticity.

The supply-side perspective emphasizes variations in technological levels across sectors. In this view, structural change is determined by variations in sectoral growth rates of productivity and the intensity of physical and human capital. Both the demand and supply-side explanations mentioned above are captured by various models of structural change that are discussed in the following sections.

2.3.1. Three sector hypothesis

The three-sector hypothesis divides the economy into three main sectors: primary, secondary, and tertiary. Such division is done according to different criteria. For example, Fisher (1939) utilizes the hierarchy of needs: the primary sector includes the goods that meet the basic human needs, the secondary sector encompasses standardized goods, while the tertiary sector includes new goods. Another criterion is classifying the main sectors according to the prevalent production factor that fosters economic growth. Correspondingly, the primary sector includes industries that are based on natural growth factors, the secondary sector includes industries that are predominantly based on mechanical growth factors, and the tertiary sector includes industries that are principally based on human skills (Wolfe, 1955). Another criterion classifies the main sectors according to their common characteristics in line with this, the primary sector, for instance, includes agriculture. The secondary sector includes goods-producing industries, and the tertiary sector includes transport, finance, communication and public administration, etc. (Clark, 1940, 1957).

According to the three-sector hypothesis built starting from the standard general equilibrium models by Ramsey (1928), Cass (1965) and Koopmans (1965), economic growth can be derived by the non-homothetic preferences and exogenous technological progress mainly represented by the secular decline of the agricultural labor force and the increase in per capita income. Such phenomenon is commonly known as **Engels' Law** (Syrquin, 1988). During the epoch of modern economic growth, such phenomenon was first captured by Fisher (1935;1939) and later developed by Clark (1940). Both Fisher and Clark particularly dealt with sectoral shifts in the labor force composition and used the distinction between; primary, secondary, and tertiary sectors (Syrquin, 1988).

More recent research associated with structural transformation has gone beyond merely documenting the secular decline in the relative significance of the agricultural sector and starts to emphasize the industrial sector. For instance, Hoffmann (1958) derives a law of industrialization proposing that in its early phases, the ratio of consumer goods to producer

goods is as high as 4 to 1, and such ratio declines during the process and reaches a value of about 1 to 1 or less while approaching the advanced stages. Accordingly, the Chenery-Taylor (1968) paper separately analyzes three different development patterns, emphasizing that the relation between changes in the industrial structure and rising per capita income shows a remarkable difference among countries. The first group is represented by "large countries," with a population greater than 15 million. The second represents small countries that are industry-oriented and that export manufactured products. The third group represents small primary sector-oriented countries, which tend to export primary products. The last group of countries reveals a development pattern that is notably different from the first two. Contrarily to the previous two, in this group, the income level of primary production exceeds industry, due to the effect of rich natural resources on the production structure.

The greater efficiency in manufacturing inputs obtained from the industrial sector, resulting from advances in scientific knowledge and technology, has thus been a dominant factor in the remarkable increase in aggregated labor productivity in the agricultural sector. Given its contribution to the agricultural sector and the higher productivity in the manufacturing sector itself, the industrialization sector is considered the central process of structural changes. Consequently, the sector draws much of the attention of the various attempts to explain the factors responsible for the observed changes in industrial structure in the course of development. Basically, most of the writers who have attempted to explain the process of structural transformation and the secular decline in the relative importance of the agricultural sector have stressed the significant role of changes in the composition of demand with rising per capita income of households (Clark, 1940; Kuznets, 1957; 1966).

As implied by Engel's Law, particular emphasis has been given to the fact that the income elasticity of demand for food is almost always less than one and that it tends to decline as higher levels of per capita income are attained. Nevertheless, changes in supply conditions resulting from changes in factor costs associated with increases in a country's domestic market size are also incredibly important (Chenery, 1960; Chenery and Taylor, 1968). The changes in costs are associated primarily to scale effects and externalities. An increase in the size of the market is a function of rising per capita incomes and increased exchange and specialization, and population growth. Kuznets has also emphasized "the importance of changes in the production particularly the supply side to explain changes in the industrial distribution of total product among both the major and minor sectors" (Kuznets, 1966, p. 104).

Further, Kuznets suggests that the processes of industrialization and urbanization require changes on the supply side as well. In this respect, what is essentially relevant is the large increase in "marketing services" included in retail outlays for food in a high-income industrialized and urbanized society. Accordingly, Kuznets presents data on developed countries that show a remarkable decline in the percent of income dedicated to food in terms of its primary cost that is its value at the farm gate or import point. In contrast, there has been a remarkable increase in the share of income spent on the processing, distribution, and transportation of food products. Although some of the additional costs associated with these services were "imposed" upon consumers, the growth in the demand for processing, distribution, and transportation services resulted from different technical innovations and other constituents that influenced consumer preferences.

Further, Kuznets emphasizes that the innovations that have transformed the features of the goods and services available to consumers and the changes in relative prices due to productivity differentials have significantly affected the composition of final demand. Recent studies on the three-sector general equilibrium model reveal that there is a mutual nexus between the aggregate economic evolution and the composition of the economic sectors (Echevarria, 1997). According to Echevarria (1997), structural change takes place when one sector prevails in the economy, decreasing the shares of the other sectors. This takes place regardless of that sector's rate of exogenous technological progress (Echevarria, 1997).

2.3.2 Dual sector hypothesis

The dual-sector model divides the economy into traditional (agriculture) and modern (industry) sectors. This model is derived by Lewis (1954) and Ranis and Fei (1961) and is grounded on structural heterogeneity, implying the coexistence of high value-added and high productivity modern sector on the one hand and low-value-added and low-productivity traditional sector on the other hand (Rodrik, 2013b). Changes in an economic structure like technological upgrading and innovations followed by productivity growth take place in the modern sector. In contrast, the traditional sector remains backward technologically.

Therefore, economic growth largely depends on the extent to which the various resources, mainly labor, can be reallocated from the agricultural sector to the industrial sectors. Arthur Lewis (1954; 1958) has been very influential in focusing attention on the dynamic

aspects of capital accumulation and growth in a dual-sector economy. He focuses on the movement of resources towards industry, which increases profit and hence saving rates.

In their dualistic model, Fei, and Ranis (1964) also formally included a stage of "redundant" agricultural labor characterized by zero marginal productivity as an important feature. Reynold (1969) suggests that "labor slack" is perhaps a better term to describe the phenomenon which he, like Lewis and many other scholars, regards as an important feature of underdevelopment.

The essential feature of Lewis' model is, therefore, his analysis of the dynamic process in which, given suitable conditions, the surplus of labor in the "subsistence", or traditional sector is absorbed by the "capitalist", or modern, sector (Johnston, 1970). Lewis' model and most of the latter dualistic models have highlighted an essential asymmetry in the production relationships prevailing among the traditional and the modern sectors. The traditional sector, where most of an underdeveloped country's labor force concentrates, is characterized by relatively backward techniques of production, coupled with a limited use of capital equipment and with low productivity levels (ibid).

According to Johnston (1970) workers in these sectors can exist even though the marginal product of some of them may be less than the average product, which roughly determines their level of consumption. Employment opportunities in the modern or "capitalist" sector, however, are distinctly limited. Production is based upon concentrated ownership of capital equipment and the hiring of wage labor for profit-making purposes. Hence, employment tends to be offered only up to the point known as **“Lewis turning point**", where the product of the last worker is equal to the prevailing wage rate. Further, the demand for labor determined by the downward sloping marginal productivity schedule of labor will be small relative to the large number of workers in the traditional sector who are willing to accept employment at a wage somewhat above the income level in the agricultural sector.

In Lewis' model, it does not matter much *"whether earnings are defined objectively by the level of peasant productivity, or subjectively in terms of a conventional or formal standard of living in the subsistence sector"* (Lewis, 1968, p. 78). Ohkawa and Minami (1964) have argued that, for instance, in Japan until a "Lewis turning point" was reached in the early 1950s, the supply of labor surpassed the demand at the wage rate in the industrial sector. This caused an unlimited supply of labor despite the secular upward trend of subsistence earnings, due to the rising productivity in agriculture (Minami, 1968; Ohkawa & Minami, 1964). Indeed, a capitalist surplus will be generated due to the intra-marginal labor employed, and reinvestment

of the profits in consequent periods will lead to a direct shift of the marginal productivity schedule of labor with the result that the expanding capitalist sector will absorb more and more workers. In this sense, Lewis's major aim in developing his model was to provide a mechanism that explains the rapid growth of saving in national income mainly due to the expansion of capitalist forms of production in the initial stages of development (Lewis, 1968).

Ranis and Fei (1961) extended Lewis's two-stage model developing a three-phase economic development model determined by the marginal productivity of agricultural labor. First, they suppose the economy to be dormant in its primitive stage, which enters into phase one when an infant non-agricultural sector gradually develops. Next, agricultural labor starts to reallocate into the modern sector. Initially, marginal agricultural productivity is very low due to surplus labor, and the institutional agricultural wage is determined by average labor productivity. Once surplus leaves the agricultural sector, the marginal productivity starts to increase, but it is still lower than the institutional wage. This symbolizes the labor shortage point at which the economy enters the second stage of development. At this stage, the rest of agricultural unemployment is gradually absorbed by the modern sector. Finally, the third stage begins when the economy reaches the commercialization point at which the agricultural labor market is fully commercialized.

Jorgenson (1961) did an intelligent and provocative theoretical analysis of a dual economy and developed a model approximately closer to the Fei-Ranis model, which is more fully elaborated than the basically heuristic Lewis model. The essential differences between Lewis' model and Jorgenson's model are two. First, the latter rejects the probability of redundant agricultural labor and proposes that the marginal productivity of labor in agriculture is always positive. Second, Jorgenson (1961) claims that the growth of an agricultural surplus defines the growth rate of nonfarm employment. Since it is obvious that, in a specific situation, the growth of nonfarm employment can be constrained by either a shortage of capital or a shortage of food for the nonfarm population, it is not feasible to establish a theoretical analysis, which will be the limiting factor. Jorgenson's view that a growing agricultural surplus is both a necessary and a sufficient condition for the growth of the nonfarm sector leads him quite naturally to suggest that capital investment that accelerates the growth of agricultural output is likely to be important in allowing a low-income economy to escape from low-level equilibrium and poverty trap (Jorgenson, 1961). Enke (1962) also argued that capital should be combined with rural land and labor to some extent, and not only with the labor that has moved to urban industry (Enke, 1962).

Nevertheless, the fact that several development economists concentrated their attention on concepts of disguised unemployment or underemployment in agriculture and the labor surplus models has led them to neglect how a surplus can be easily extracted from agriculture. The focus on the "surplus labor" often seems to induce to neglect the agricultural sector and leads to the inclinations to plainly assume that a surplus can and should be extracted from agriculture, while overlooking the difficult requirements that must be met if agriculture is to play a positive role in facilitating overall economic growth (Mellor, 1967; Nicholls, 1963). In this regard, agricultural economists claim that the interrelationships between the agricultural sector and the non-agricultural sector at different stages of development have significant implications for agricultural development policies. For instance, Johnston and Mellor (1961), have stressed the significance of a specific and contextual type of agricultural development strategy in countries where little structural transformation and industrialization has taken place. They have argued that agricultural labor is a relatively abundant and low (opportunity) cost resource in such economies because of the slow growth of demand for industrial labor. Therefore, the development of agricultural production should be mainly based on labor-intensive, capital-saving techniques while relying profoundly on modern technologies and technical innovations (Johnston & Mellor, 1961; Mellor, 1966, 1967).

Outside of the "surplus labor" hypothesis, Schultz (1953) proposes the "industrial-urban hypothesis," which emphasizes the spatial aspect of the relationships between industrial-urban centers and the surrounding agricultural community (Schultz, 1953). Schultz industrial hypothesis is related to the persistence of substantial regional disparities in the rate and level of agricultural development conveniently summarized in three propositions: (1) economic growth occurs in a specific locational matrix; (2) the centers of growth are primarily industrial-urban in composition, and (3) an economic entity performs well at or near the center, and it also performs better in parts of agriculture favorably located near to a center (Ruttan, 1968; Schuh, 1969). Although substantial regional income disparities characterize Schultz's analysis, the agricultural system and the economy in question were highly dynamic and rapidly growing. For instance, Schuh (1969) points out that Schultz's approach is focused on the case of developed countries and gives less attention to how agriculture can be more productive so that it can contribute more to the industrial development (Schuh, 1969). Schultz does not consider industrialization as an essential element in the economic growth of under-developed countries (Schultz, 1956, 1968) and, according to Schuh, there is an apparent asymmetry and contextual differences in Schultz's treatment of the agricultural sector in high- and low-income countries.

He also notes that the frame of reference for Schultz's industrial impact hypothesis is the causality that flows from industrialization, while industrialization is perceived as a process exogenous to the agricultural sector (Schuh, 1969, p. 383).

In contrast to Schultz's hypothesis, Paul Bairoch (1964) offers an interesting analysis of the interrelationships between agricultural and industrial development in developed countries, mainly focusing on its relevance to developing countries. His historical work emphasizes that the causality flowed from agriculture to industry, represented by an increase in agricultural productivity, and the demand for agricultural inputs supplied by industry were the major forces driving the process of cumulative economic growth in developed countries. Accordingly, he concludes that efforts to foster industrial development in the contemporary underdeveloped economies *must "seek to create favorable interactions between industry and agriculture"* (Bairoch, 1964, p. 210).

From the international relations perspective, Harry Johnson (1969) offers significant insights on the agriculture-industry interactions. In his approach, differences in the endowment ratios of capital to labor are the fundamental differentiating characteristics that determine production and trade patterns. In his broad conception of capital, Johnson (1969) includes physical capital equipment and natural resources, social capital, human skills, and the technical and organizational knowledge according to which the human and material factors of production are connected in the production process. Such a broader perspective of growth as a process of capital accumulation underscores Nathan Rosenberg's (1964) two propositions. In the first, Rosenberg claims that to understand the problem of growth of output over time, *"we are compelled to examine new problems of a sort which are not illustrated by static analysis"* (Rosenberg, 1964, p. 61). He emphasizes the effects of several feedback mechanisms on the productivity of the human agent. He suggests that there may be important differences between agriculture and manufacturing, or between different types of manufacturing or agricultural activity. Such differences might be in the kinds of qualitative changes in the human agent that are generated, and therefore in the impact over time of different patterns of resource use on productivity changes. Rosenberg's second proposition deals with agricultural strategy and the process of structural transformation. Accordingly, the emphasis is placed on the special importance of the capital goods-producing sector and on *"its role as a source of new technology suitable to a country's factor endowment"* (Rosenberg, 1964, p. 71).

Rosenberg (1964) claims that the extent of advancement in the capital goods-producing sector is the crucial factor to explain the differences in the growth performance of industrialized

countries and of "primary products producing countries", where little structural transformation occurred. In this regard, the significant factor contributing to the viability and flexibility of industrial economies is the prevalence of a well-developed capital goods sector maintaining factors, such as the technical knowledge, skills, and facilities for producing machinery. In turn, such factors meet the dynamic requirements of productive activities and allow to raise the productivity of machinery production itself, minimizing its cost and encouraging its further adoption. This is the most significant feedback, which explains the differences in behavior between industrial and primary products producing countries.

Indeed, under-developed economies import much of their capital goods from the international market, and this deprives them of a learning experience in the production, improvement, and adaptation of technologies, which may be vital for their economic growth (Rosenberg, 1964). For countries where little structural transformation has taken place, the agricultural strategy adopted will significantly influence the "feedback effects" and "diffusion mechanisms" that determine whether there will be strong, growth-promoting interactions between agricultural and industrial development.

This suggests that decisions regarding the design of an appropriate strategy for agriculture should consider factors that tend to be ignored when "Transforming Traditional Agriculture" is not seen as a part of the basic problem of "Transforming Traditional Agriculture Societies." The conclusion suggested by Johnson's analytical framework and by Bairoch and Rosenberg's provocative ideas that advancements in indigenous manufacturing activities will exert a powerful influence on the expansion of output and employment and on the subsequent "generalized process of capital accumulation." In developing countries, particularly important for the strategy for agriculture to have important indirect effects, by absorbing a rapidly growing labor force into productive employment, and equally important direct effects related to the choice of technology to be used in agriculture.

2.3.3 The linear-stages-growth model

The economic growth analysis performed by economic historians has been mainly centered on industrialization as a major driver of economic growth. Therefore, they assign primary importance to the industrial sector (Marjanović, 2015). One famous historical approach that emphasizes industrialization is the "stages approach" pointed out in Rostow's modern economic growth theories (1960). This approach divides the process of economic

development into five stages. The first is the traditional society, where the majority of people are engaged in agriculture with limited technology and investment levels. The second is the transitional stage of economic growth. In this phase, the technology and investment conditions for growth, as well as the socio-political structure and production techniques, are under construction for the next stage. A rise in agricultural productivity also leads to the expansion of the domestic markets for processed commodities and manufactured goods and hence contributes to the growth of investment in the industrial sector. The third is the takeoff stage, in which the economy transforms itself more or less automatically towards economic growth. It represents the interval duration in which the investment rate increases so that real output per capita rises. The fourth is the maturity stage, which is defined as the period when a society has effectively utilized the bulk of its resources and applied the range of modern technology. The industrial sector at this stage is mature and hence differentiated, with new leading sectors replacing the older ones that emerged during the takeoff stage. Finally, the fifth stage is the age of high mass consumption, where the balance of attention of the society is shifted from supply to demand, from production to consumption, and to welfare in the broadest sense.

Among these stages, the central one is the "takeoff stage," represented by three structural elements. The first is accelerated capital accumulation. The second is an expansion in the manufacturing sector, with a high rate of growth which in turn transforms the production structure towards industrialization. The third is a social, institutional, and political framework that promotes the development of the new modern sector.

This approach was later criticized for its abstracting of the endogenous forces that drive the transition between the stages and the absence of specified preconditions for the takeoff stage. It is also blamed for its tendency to point towards a unique path of development. For instance, Gerschenkron (1962) points out that processes of rapid industrialization started from different backwardness levels, and mainly the initial level of countries' backwardness determines the course and character of industrialization.

Thus, in his view, the focus shifts from the identification of the prerequisites to the search for ways to substitute missing prerequisites. In this regard, Kuznets (1971) also argues that industrialization is not simply a function of technological change, but also the interdependence between beliefs social institutions industrialization and urbanization are equally important for productivity growth. The size of countries' markets is another major determinant of the manufacturing sector. As income rises, manufacturing has price and income elasticity advantages because both income and price elasticity of demand are relatively higher in the

manufacturing sector than in other sectors (Cantore et al., 2017; Marconi et al., 2016). Therefore, higher income is related to a higher manufacturing share, and the higher the internal demand, the higher the expansion of manufacturing (Samouel & Aram, 2016).

According to Rostow's (1960) notion of the "leading sector," it is also related to changes in the supply structure, as it leads to industrial development with a simultaneous decrease in the share of agriculture (Baumol 1967; Baumol et al. 1989).

Due to the higher productivity in the manufacturing sector than in agriculture, the shift of resources into manufacturing induces higher rates of productivity-enhancing growth (Cantore et al., 2017; Marconi et al., 2016; Oyelaran-Oyeyinka & Kaushalesh, 2016). In addition to its higher productivity advantage, the manufacturing sector also has higher positive externalities and spillover effects and a higher labor absorption capacity (Haraguchi, 2015; Haraguchi et al., 2019; Szirmai, 2012; Szirmai & Verspagen, 2015; McMillan et al., 2014; Timmer et al., 2015; Timmer et al., 2012).

Rodrik (2013d, 2014) summarizes the advantages of manufacturing into three features. First, its dynamic nature towards technological upgrading exhibits unconditional labor productivity convergence. Second, it can absorb a higher number of both skilled and unskilled labor, depending on the nature of its light or heavy sub-sectors. Third, it is not constrained by the size of the domestic market because it is a tradable sector and hence can be traded internationally.

Contrarily to agriculture or extractive sectors, which face shortages of land while they expand (Jha & Afrin, 2017), manufacturing benefits from economies of scale, and its potential is essentially unlimited, specifically in an increasingly globalized world and international market (Nicet, 2020; Rodrik, 2013d; Totouom et al., 2019). From the global point of view, manufacturing contributes to structural change for several reasons. First, it is a high value-added sector attracting more labor and foreign investment (Totouom et al., 2019). Second, the important difference in productivity among manufacturing firms of the same sector offers a wider scope for further labor reallocation from less productive to more productive firms (see also Monga, 2012). Finally, diversification and sophistication of manufactured products influence productivity growth (Page, 2012).

Manufacturing also has an advantage of increasing returns, primarily forwarded in the Verdoorn law that proposes the positive relationship between output and productivity growth (Verdoorn, 1949). Such proposition relies on the interaction between the size of the large market and economies of scale at the firm level to allow higher productivity, which in turn

compensates for higher income levels and hence creates the conditions for more advanced methods of production (Rosenstein-Rodan, 1943; Scazzieri, 2014; Scazzieri & Witt, 2005). Manufacturing also boosts savings, facilitates the process of capital accumulation, provides higher investment opportunities, and enables economies of scale by driving technological progress (Szirmai, 2012; Szirmai & Verspagen, 2015). It is also the locus through which technological progress takes place in economies, mainly thanks to its higher capital-intensive nature (Chenery, 1986; Cornwall, 1977).

Moreover, manufacturing has stronger linkages to other sectors, mainly because manufactured goods are widely utilized in the other sectors (Nurkse, 1953; Hirschman, 1958; Rosenstein-Rodan, 1943; Cornwall, 1977). In particular, Hirschman (1958) points out two types of linkages. The first is backward linkages, which occur when other light industries (i.e., steel producers) supply their input to heavy manufacturing (i.e., car producers). The second is forward linkages, which occur, for instance, when downstream industries (i.e., steel producers) utilize the output of the upstream industries (i.e., automobile producers).

Further, the higher the demand for manufactured goods, the higher the demand for capital goods and intermediate inputs necessary to produce consumer goods, increasing manufacturing output (UNCTAD, 2016). Therefore, when countries successfully industrialize, they can satisfy the higher demand for manufactured goods domestically and can promote their sophisticated and diversified export in the global market (Rodrik, 2013d). On the contrary, when countries do not industrialize, they need to import more manufactured goods, real exchange rate appreciation, and balance of payment deficit, due to the higher price and income elasticity of manufacturing goods (Prebisch, 1950; Singer 1950).

2.3.4 De-Industrialization, the Dutch Disease and the premature de-industrialization

As manufacturing is the major determinant of economic growth, developed countries had passed through the industrialization phase with extensive development of the manufacturing industry before they reached the turning point where the demand for manufactured goods declined while the demand for services rose. The variation in the sectoral composition of economies has been a significant feature of structural economic changes. The most prominent of such changes, especially occurring at the later stage of development, has been a shift from manufacturing towards services, which has become commonly known as the phase of **de-industrialization** (Tregenna, 2011).

Rowthorn & Wells (1987) point out two types of de-industrialization. The first is a positive de-industrialization, which occurs in developed countries due to high-level income and sustained economic growth. Despite the increasing output, productivity in the manufacturing sector is so rapid, that it leads to the reduction of employment in this sector, either in absolute terms or as a total employment share. The higher productivity growth in manufacturing enables firms to meet the demand using less labor and more technology. When the output expands, the productivity growth reduces the amount of employment required, and the displaced workers find employment in the services sector because, as incomes rise, the demand patterns shift towards services. Hence, the share of employment in services is naturally expected to increase as employment in manufacturing decreases (Baumol, 1967; Baumol et al., 1985). In contrast, a negative de-industrialization occurs when the labor moving out of the manufacturing sector due to decreasing output or increasing productivity is not absorbed by the service sector, leading to a higher level of unemployment.

This situation is the consequence of an economic failure because the decreasing manufacturing productivity creates unemployment, and thus decreases the income levels (Rowthorn, 1994; Rowthorn & Wells, 1987; UNCTAD, 1995). In this regard, Tregenna (2014) develops new de-industrialization conceptualizations that postulate economic structure shifts from the manufacturing sector to the service sector. He distinguishes two forms of de-industrialization. Form I indicate the shift from the manufacturing sector to non-surplus value-producing activities, while Form II from the manufacturing sector to the surplus-value-producing activities.

These forms affect economic growth differently. The shift from the manufacturing sector to the financial sector is the most common type of Form I de-industrialization in upper-income economies. Another instance of Form I de-industrialization is the potential shift of the manufacturing production from the developed countries to other countries that can produce goods with lower labor costs. One of the direct effects of reallocation from the manufacturing sector to the non-surplus value-producing activities can be the decreasing surplus-value production in the entire economy due to the decrease in possible accumulation rate of the surplus-value production. However, this is not the rule. Form I de-industrialization occurs spontaneously by increasing the surplus-value production in the short run by increasing the production of goods produced elsewhere to fuel economic growth. For instance, it is possible to generate a higher level of revenue from commodity exchange or financial lending especially

where 'unequal exchange' is sustained, through political measures or other means. However, this revenue usually goes to the advantage of elites and do not create any new value.

Form II de-industrialization refers instead to a transformation from the manufacturing sector to surplus value-producing activities. This can be realized by means of a transfer from the manufacturing sector to mining and agriculture, or from the manufacturing sector to the services. A common instance of the Form II de-industrialization is the **Dutch disease** (or the **resource curse**), which happens when the abundance in natural resources leads to a shift of resources from manufacturing to the primary sectors. This situation might gradually lead to undesirable outcomes related to structural change and sustainable economic growth (Auty, 1993; Frankel, 2012; Sachs & Werner, 1995).

The Dutch disease is related to three effects (Corden & Neary, 1982; Frankel, 2012; Gylfason, 2001; Krugman, 1987; Neary & Van Wijnbergen, 1986; Papyrakis & Gerlagh, 2004; Sachs & Werner, 1995; Papyrakis and Raveh, 2014)

First of all, the massive increase in the revenues obtained from natural resources leads to an appreciation of the real exchange rate, which increases the relative prices of non-resource commodities, and hence their export becomes expensive relative to global market prices ("spending effect"). As a result, the competitiveness of these non-resource commodities and the level of investment they attract decrease. The second is the so-called "pull effect" or resource movement effect, which is a reallocation of the production factors such as capital and labor from other sectors to the commodity and natural resource sector (Larsen, 2004). Consequently, their prices on the domestic market rise, causing an increase in the production costs of other export sectors, such as manufacturing and services (Humphreys et al., 2007). A third mechanism is the spillover-loss effect, i.e., the loss of positive externalities associated with the non-tradable (crowded out) sector, which leads to a direct de-industrialization of a country (Larsen, 2004).

The resource curse paradox is also related to the rent-seeking theories claiming that the revenue from natural resources can turn governments into rentier states which engage in or support nonproductive activities and provides fewer public goods than required (Sala-martin and Subramanian, 2003; Collier and Hoeer, 2004; Cavalcanti et al., 2011; Bodea et al. 2016). As a result, de-industrialization may persist as production shifts to the booming non-tradable sector, the tradable sectors lose their comparative advantage (Krugman, 1987). An extended form of the Dutch disease could also be considered when a country discovers a considerable amount of natural resources, experiences advancement in export revenue or in the tourism

sector, or when 'liberalization' or globalization policies induce additional de-industrialization (Palma, 2005).

Palma (2005) also reports that the decline in manufacturing employment in contemporarily developing countries is related to very low-income per capita level. This implies that these countries tend to deindustrialize before they reach high enough income levels, commonly known as **premature de-industrialization**. Rodrik (2016) shows that Latin American and African countries witnessed the most remarkable premature de-industrialization processes. Since most of these countries lack a strong comparative advantage in manufactured goods, premature de-industrialization can be explained by their engagement in the global market, which destroys manufacturing jobs. As a result, there is an increasing shift of labor towards service sectors. In this regard, UNIDO (2013) proposes that the demarcation line between manufacturing and services in developing countries is getting obscured in recent years due to increases in manufacturing-related services (services required for the production and delivery of manufacturing products) and outsourced services by manufacturing firms to other firms in the tertiary sector. According to UNIDO (2013), business services are highly related to manufacturing production, followed by transportation services, financial intermediations, and trade integrations. In this sense, there are controversies on the potential opportunities in the linkages between services and high-productivity manufacturing activities. This discussion led to some arguments that the services sector is becoming an additional engine of economic growth (Felipe et al., 2009), or at least some parts of it have replaced manufacturing in triggering economic growth (Ghani & O'Connell, 2014; UNCTAD, 2016).

According to Rodrik (2014), tradable services, i.e., finance, banking, and insurance, experience higher productivity levels because they involve the usage of modern technologies like ICT. Furthermore, they also offer higher salaries and grant wider learning opportunities for their workers. Nevertheless, there are significant challenges with regard to services that endeavor to establish linkages with industry in developing countries. This is mainly due to many informalities associated with services, i.e., a low level of human capital, and consequent low usage of ICT and lack of productive capabilities on creating new products or innovative ways of doing business (Salazar-Xirinachs et al., 2014). Moreover, contrary to the scarcity of skilled manpower in developing countries, tradable services require skilled labor, which is also challenging to attain in the short run mainly because it takes a long period of time to train workers leaving agriculture and reallocating them in the tradable services (Rodrik, 2013a).

As a result, labor is shifting into non-tradable low-wage services, especially in wholesale and retail trade, tourism, restaurants, and hotels (UNCTAD, 2016). Thus, although non-tradable services are capable of accommodating a large number of labor and technological progress, their opportunities for productivity enhancements are limited (Rodrik, 2013a). In contrast, through manufacturing, developing countries can promote export-led industrial strategies that can spur industrialization and economic growth. Hence, to ensure sustainable growth, both services and agriculture need to be accompanied by productivity growth in the manufacturing sector.

2.3.5 The Neo-Schumpeterian evolutionary model

Joseph Schumpeter has been one of the leading neoclassical economists dealing with long-run capitalistic economic development. He aimed to develop an evolutionary theory of economic change differing from the static equilibrium theory (Schumpeter, 1939). Schumpeter believed that the equilibrating forces, which the static equilibrium theory had proposed, push the economy into a steady state, but only if innovation is absent (Fagerberg, 2003). For Schumpeter that seems unrealistic, since the innovation processes themselves shape the economic evolution and force the economic structures to change and to continue to change over time (ibid). Schumpeter defined innovation as the outcome of a strife between the firms who usually struggle to do things better and the inactive environment that works naturally. He attributed innovation to the technological progress that stimulates high-value-added activities to generate more profits and to attain further developments in order to achieve sustained economic growth (Schilirò, 2012).

Schumpeter referred to dissemination as the process that takes place between the related activities with reference to the product space (Schumpeter, 1939). For instance, he demonstrated that the economy is made of clusters, each of which consists of connected activities subject to the impact of technological progress made possible by self-innovation or by imitation and allowing them to survive and gain market shares. The activities that catch up to the technological progress grow faster than the others and even more than the whole economy; however, this is temporary and only happens until the technological progress completes its diffusion through the other activities in the same cluster, then to the other related clusters and finally to the whole economy. At this point, the growth of the first cluster starts to

decrease until it is catching up to innovation or imitating it. Then, to survive, the rest of the clusters have to make further improvements. Otherwise, they will be forced to exit the market.

Accordingly, Schumpeter (1939) argues that the structural change process is not a complementary element; instead, it is the foundation of a sustained economic growth. He also claims that it is impossible to reach economic growth without continuous a structural change based on innovations or imitations, which result from the technological progress. Furthermore, Schumpeter foresees two forms capitalism. (1) *Competitive capitalism* represents the individual entrepreneurs themselves, denoting that innovation in the competitive stage can be achieved by creating new firms. In contrast (2) *trustified capitalism* represents the large enterprises playing the leading role in the economy without the entry of new firms (Schumpeter, 1939).

As Schumpeter indicates, the real competition in the capitalist system emanates from the innovative firms that execute the entrepreneurial function. The real competition leads to the **creative destruction** process, according to which new products or new productive processes replace the old ones. According to Schumpeter, the evolution of capitalism from the competitive to the trustified one occurs through the destruction of the older innovations, while simultaneously creating new ones without reducing the quantity or the quality of economic growth (Schumpeter, 1939).

After the death of Schumpeter, the limited capacity of the formal equilibrium models to explain the evolution of the economic structure and international trade becomes even more visible, favoring the emergence of the **neo-Schumpeterian evolutionary approach** to economics dealing with technological competition by creating linkages between the firm-level heterogeneity and industrial level, and including the macroeconomic dynamics (Fagerberg, 2002). Such linkage of the microevolutions to the macroeconomic variables provides several advantages in analyzing both the economic structure and policymaking. Accordingly, the evolutionary economic approach operates as an alternative one examining the structural changes based on the associations between the innovation induced by technology adoption and its effect on the aggregate economic growth (ibid). However, this evolutionary approach has been mainly ignored by the mainstream equilibrium approach until the recent resurgence in structural change analysis of economic growth (Silva & Teixeira, 2008).

The main attempt to develop formal models of the economic evolution can be traced back to Nelson and Winter in their 1982-book: An Evolutionary Theory of Economic Change. Their contribution takes inspiration from Schumpeter's idea of technological competition as the

compelling force of economic evolution. Accordingly, Nelson and Winter argue that firms should constantly invest in innovation and imitation, so as to improve their productivity and generate more profits. Such profit can be reinvested in the adoption of new and more productive technology. The firms that succeed in gaining more profits grow faster and expand their market shares, while those failing in doing so will ultimately exist the business (Nelson & Winter, 1982).

Building on Schumpeterian economics, Nelson and Winters initiate the new wave of evolutionary economics based on the connection between evolution, cognition, and action (Fagerberg, 2003). Accordingly, they attempt to explain the evolution of the economic structure, particularly by examining the complex and uncertain relationships between the microevolutions and the aggregate economy considering innovation as the energetic constituent of economic growth and development.

A relevant aspect for structural change is the way in which the process of innovation diffusion and the speed of such diffusion. The diffusion of the innovations does not occur arbitrarily; instead, it is liable to cluster in certain industries and time periods due to specific historical, geographical, cultural, and institutional factors (Nelson & Winter, 1982). The concept of **technological paradigm** helps to determine the potential directions that the cluster has to pursue. This concept refers to a set of routines, knowledge, and practices within which technological trajectories exist. In this regard, there are two patterns of technological changes (ibid). The first is the continuous technological innovation occurring along the same technological paradigm, while the second is known as the **long waves** and refers to the discontinuous technological innovation emerging from the commercial processes of the paradigm (Silva & Teixeira, 2008; Kondratiev, 1935).

As discussed above, diffusion is related to the specific historical, geographical, cultural, and institutional factors motivating the technological gaps between different economic systems or between sectors, or even among the firms in the same sector. Hence, while some sectors or firms achieve productivity improvements and increase their market shares, others may lose their competitiveness and reduce their market shares.

From an international perspective, globalization removes barriers between countries and puts pressure on domestic products by requiring new ways of adopting the new and productive technological innovations to improve their productivity and penetrate into global competition (Rodrik, 2013d). The pace at which the countries catch up with the new innovations separates the successful countries from the unsuccessful ones. Countries equipped with the necessary

capabilities and equipment are able to catch-up; on the contrary, the poor countries are at risk of being trapped due to their lack of required innovation. The ability to adopt innovations is molded by the levels of demand of investment, and of technological convergence (ibid).

The development literature has highlighted two conditions for catch-up to occur: the structural transformation and the fundamentals. According to the first, economic development requires rapid resources to rapidly flow from lower value-added to higher value-added sectors (McMillan et al., 2017). This is in line with the dual economy approach described in section 2.3.2, which sharply discriminates between the traditional sectors and the modern sectors, with the latter having greater opportunities for accumulation, innovation, and productivity evolution. In this regard, the manufacturing sector plays a crucial role as the engine of economic growth. The second condition assumes that a sustainable productivity growth requires enhancing the quality of institutions, accumulating physical and human capital, and generating new combinations within the economic structure based on the R&D activities (ibid). Therefore, during the development process, internal productivity evolution and productivity-enhancing selection must go hand in hand.

To sum up, the structural change can produce sustained rapid growth on its own, yet if it is not accompanied by an accumulation of skills and an upgrading of institutional capabilities, growth risks to be fragile and unsustainable. On the other side, to fail reallocating resources to the higher productivity sectors, creates a stable but sluggish economic growth. For developing countries, at least part of the economic growth can be achieved by structural transformation from the shift from low- to high- productivity sectors.

2.3.6 Vertical Vs. horizontal hypothesis

In explaining the economic structure either from the demand side or from the supply side, the development literature analyzes the economic system both horizontally and vertically. The horizontal explanation of the economic structure can be traced back to the classical economists, who describe the economic structure as a circular process consisting of dependent clusters. For instance, the works of Sraffa (1960), Neumann (1945), and Leontief (1941) represent the production function as a circular process starting from the production of only two commodities and ending with a complicated system with multiple commodities. In other cases, they examine the economic structure as a process through which the production of physical goods occurs by means of other goods. Also, Leontief (1941, 1991) illustrated the horizontal flows of basic

inputs to produce different outputs. The vertical representation of the economic structure instead divides the economic system into subsystems, each of which produces a different commodity, and the different commodities are then combined to produce the final one. For instance, Pasinetti (1973) shows that the economic system consists of several vertically integrated sectors that combine the necessary labor and intermediate goods requirements to produce the final commodities.

Hicks (1973) split up the process of vertically integrated production into two phases; the phase of construction, in which n-1 intermediate goods can be manufactured over n periods of time by means of labor and the phase of machines utilization, in which final goods are formed by combining labor and the intermediate goods produced in the former stage. Accordingly, Lowe (1955, 1976) divides the capital-intensive sector into two subsectors: the first includes the equipment necessary for the consumer goods sector, and the second is the machine-tools sector, which includes equipment for both subsectors. The enlargement of the consumer goods sector necessitates expanding the machine-tools sector, which Lowe considers the fundamental component of economic growth.

Using the traverse analysis, Hicks (1973) adopts an approach that proposes that the economic structure changes concurrently with the technological progress. There is, therefore, a transition period from using the old to new production techniques until new technological innovations occur. One of the expected concerns of such a transitional approach is an increase in the unemployment rate, but only in the short run. Pasinetti (1981, 1993) considers full-employment and complete use of productive resources as key sources of a sustained growth. He emphasizes that full employment can be achieved by means of transfer of labor between the productive sectors. Pasinetti defines the structural change process as the key source of long-run economic development. He supposes that, under the conditions of full employment and stable prices, the structural change process prevails within a system of vertically integrated sectors. According to him, each sector leads to a particular final consumption good or set of such goods by comprising all input combinations, calculated through an input-output system of horizontal relations.

According to Pasinetti, structural changes is favored by the increased productivity possible because of a process of individual and social learning in the production process, leading to technological upgrading. The second force favoring structural change is the changing consumer behavior driven by the learning of new consumption patterns accompanied by an evolution of the population. Higher productivity increases the real income per capita, which in

turn, changes the composition of the consumption expenditures due to the saturation of customers' basic needs/references and the subsequent desire for new goods and services. Pasinetti ascribes the structural change process to the varying sectoral evolution rates of consumption patterns, which are exogenously constant. On the one hand, for instance, the supply side is reflected by the increasing productivity growth and driven by the varying sectoral growth rates of technological progress, stimulating structural change. On the other hand, the demand side is reflected by the sectoral and time differences in incomes elasticities and determines the direction of the structural changes (Pasinetti, 1981).

Pasinetti (1981) also claims that the sectoral differentiation of income elasticities of demand affects structural changes and aggregate growth patterns. Such elasticities are not constant over time, because they result from the aggregation of individual Engel's curves, which depend on consumers' income, sex, and age distributions within the economy.

Pasinetti (1981) also claims that structural changes and aggregate growth patterns are determined by the sectoral differentiation of income elasticities of demand. Such income elasticities are not static, since they arise from the aggregation of individual Engel's curves, which rely on consumers' income, gender, and age distributions within the economy.

Pasinetti's proposition sheds new light on factors determining sectoral transformations and the non-uniform type of growth.

2.4 Approaches to structural change: policy implications for developing countries

Most economists in the classical tradition consider laissez-faire economics as the most efficient and effective mechanism to achieve sustained growth. They believe that through the market system, resources and factors of production can efficiently reallocate into more productive sectors that offer a higher output level. In this framework, the questions; of what and how to produce are determined by the price system, and through the invisible hand, a structural change and economic growth would occur automatically as the economy expands. However, as dominant as this approach has been in the intellectual arena, it did not consider the crucial role of production structure and technology dynamics in sustaining economic growth.

The dynamics of technology change differentiate the modern from the traditional economic era, while the dynamics of the economic structure determine the productivity level

among different sectors. More recent studies identify these decisive elements of structural change and developed various theoretical perspectives based on the two major but different tracks: (1) neoclassical economics-based growth theories and (2) structuralism-based development theories. The following sections address the two main approaches in development theories (structuralist and new structural economics), and another approach from the growth theories (neoliberalism), with particular emphasis on the policy implications for developing countries.

2.4.1 Structuralist or dependency approach

The deterrent effect of international trade during the Great Depression, for instance, deterioration in terms of trade followed by an economic crisis in Latin America, led to export pessimism in the 1930s (Lin, 2011). During this time, the Latin American countries had a comparative advantage in primary products, and hence they were exporting these products to the international market (ibid). However, by the 1940s, Latin American economists argued that export-led growth of raw materials was no longer beneficial, mainly due to the declining price of primary products exports and the rising price of manufactured products that Latin Americans were importing (Love, 2005). Further, the low level of revenue from primary products exports did not allow them to afford the goods they imported, including manufactured products (Contreras,1999; Love,2005).

Consequently, the so-called structuralist school started to emerge, and many Latin American economists, including the famous pioneers Prebisch (1950) and Singer (1950), claimed that the situation would persist even after the conclusion of the War for two major reasons. First, technological advancements that decreased the production costs of manufactured goods did not lower the price of goods developing countries were importing. Second, structuralists argued that the industrialized nations were retaining the fruits of those technological advances in the form of increased profits for the manufacturers and the workers as higher wages. They also claimed that there is a transfer of income or capital flight from resource-intensive developing economies to capital-intensive developed economies. Due to these flaws in the international market, the structuralists argued that the advancement of the domestic industrial sector was the most appropriate mechanism to foster economic development (Bielschowsky, 2009; Contreras, 1999). Therefore, they propose a strategy commonly known as import substitution industrialization (ISI) to foster the development of

domestic manufacturing industries. This strategy also helps to diversify away from commodities and natural resources and to broaden the variety of the production structure of developing countries.

For instance, through diversifying away from natural resources, Brazil experienced a substantial growth-promoting structural change throughout the 1970s (Lin, 2011). Moreover, as suggested by structuralists, exchange rate, trade, financial and industrial policies played a significant role in promoting a fruitful structural transformation (ibid).

The structuralists define economic development by the increasing number of economic sectors and the extent of the utilization of the most advanced levels of technology coupled with the related technical progress (Chenery, 1975; Missio et al., 2015). For structuralists, economic development should be accompanied by a structural change of underdeveloped economies, in turn enabling a process of self-sufficient and sustained economic growth (Lin, 2011, 2019).

In addressing underdevelopment and dependency problems, structuralists suggested that economic growth should be deliberately driven by internal demands. They argue that only through government intervention that structural change can bring about the desired economic growth (Bielschowsky, 2009; Contreras, 1999). Along this line, governments-imposed tariffs to discourage imports, protect existing or infant domestic industries, and stimulate and expand the internal market (Lin, 2011).

A tariff was regarded as a fair playing ground for manufacturers in developing and industrialized countries. The latter countries have better access to finance and technology, accompanied by more productive labor (Lin, 2019; Missio et al., 2015). Such factors, in turn, enabled their manufacturers to produce a given product at a lower cost and quicker than the "infant industries" in latter nations (ibid). The importing country's government encourages import substitutions while protecting domestic industries by imposing tariffs on imported goods. In other words, tariffs are designed to make domestic products more attractive to consumers by making imported products more expensive than the former. In theory, the structuralists assume that tariffs have to be reduced or lifted once the domestic industry has attained a certain development threshold that enables it to compete without government protection. Given the shortage of finance and limited capital markets, structuralists argue that only the state can generate and manage the sizeable investment revenues required to industrialize in developing countries (Lin, 2011, 2019). Other recommended policies are fiscal policies, such as taxes and government expenditures, and monetary policies, such as money supply and interest rates (ibid).

Despite the essential contributions to the knowledge of economic development, structuralists' prescriptions were not fruitful in practice (Lin, 2011, 2019). The results were even quite disappointing in many circumstances. In the 1960s and 1970s, many developing nations witnessed the failure of the well-intended government interventions advocated by structuralists (ibid). This happened in Latin American, South Asian, and African nations, where import substitution and protection of domestic firms were essential hallmarks of the development policy (Bielschowsky, 2009; Missio et al., 2015). The major reason for the failure is that they unknowingly defied their comparative advantage determined by their endowment structures (Lin, 2011, 2019). They did so by prioritizing heavy capital-intensive industries when the capital level was still scarce in their economies and by deemphasizing the importance of their factor endowment to ensure their comparative advantage (ibid). In executing those policies, the governments of developing countries had to protect numerous nonviable and incompetent firms in their strategic sectors (Lin, 2009; Lin & Li, 2009). Furthermore, by aggressively protecting unsustainable industries, they imposed various types of additional costs on their domestic economy (ibid).

Consequently, countries that implemented the import-substitution strategies witnessed that government-led industrialization initiatives could not effectively create the desired development in the manufacturing sector (Lin, 2011). Furthermore, the heavy-handed government intervention created market distortions and inefficiencies that ultimately caused major internal and external economic difficulties.

After the failure of the teachings of structuralists, a resurgence in the free-market approach began to arise in many countries in the 1980s and 1990s.

2.4.2. Neoclassical theory or neoliberalism approach

Classical or neoclassical economics relies on market mechanisms for cost efficiency and effective allocation of scarce resources. In this market-based economy, self-interested individuals drive the economic outcomes as they pursue their own interests led, "as if by an invisible hand," to perform economic activities in favor of the interest of other individuals and the entire economy (Lin, 2011). This approach proposes a free-market economy where no government-created barriers restrict the functioning of the competition-based market (Contreras, 1999). After the failure of structuralist economic policies, the neoclassical theory revived in the 1980s (Lin, 2019),

dismissing the structuralist's view of government intervention in dealing with international structural barriers and domestic structural bottlenecks (Botta, 2009; Contreras, 1999). Instead, neoclassical economists claim that the economic failures in developing countries arise from poorly designed economic policies and extreme government interference in the market (Stiglitz, 2008). According to them, in order to enhance the domestic production system and create an efficient market, countries should promote privatization of state-owned enterprises, liberalization of trade, limit restrictions on foreign investment, and reduce government regulations (Taffet & Walcher, 2018; Williamson, 2004, 2009). In general, market forces, and not government intervention, would enforce development in stagnating economies. Neoliberalists argued that the misallocation of resources and rent-seeking opportunities arising from excessive government intervention were the barriers to the convergence of developing countries (Gore, 2000; Williamson, 2009). Hence, neoliberalism advised developing countries to address "government failures' by implementing the so-called economic policy, Washington Consensus.

The fundamental theorems of welfare economics on which the Washington Consensus was intellectually founded presented the dogmatic understanding of the invisible hand theorem, the condition in which free markets lead to efficient outcomes for the entire economy (Williamson, 2004, 2009). There are no externalities, no public goods, no uncertainties, no issues of learning, and there exist perfect competitions, perfect capital markets, and intertemporal markets (Stiglitz, 2008). Further, as Greenwald and Stiglitz (2003) presented, in a laissez-faire economy, there are no imperfections of information, no change in the programming of information, no asymmetries of information. Due to these assumptions, policies were assumed to be applicable in every country, in every sector at any given time.

The one-size-fits-all approach suggested by the Washington Consensus approach (Stiglitz. 2008) deprives the possibility of policy analysis on which government interventions are suitable in what context, or which institutions, and what enhances the capacity of governments to intervene efficiently and effectively (ibid). Nevertheless, there is no theoretical ground to believe that markets will lead to efficient outcomes independently, especially in the early stages of development. Instead, there is historical evidence that, with strategic government intervention, few developing countries in East Asia, such as China, South Korea, Hong Kong, and Singapore, achieved great economic success and were able to converse with developed economies (Lin, 2019; Stiglitz, 2008). Strikingly, the common thing among these high-performing economies is that they follow neither the structuralist nor the neoliberalists'

approach in their pathway to development. For instance, instead of the structuralists' import substitution strategy (ISI), South Korea, Hong Kong, and Singapore adopted an export-oriented development strategy. Further, instead of trade liberalization advocated by Neoliberalism, China adopted a dual-track gradual approach in transitions from a government-led economy to a market-led economy and achieved dynamic growth (Lin, 2009, 2019). From this background, it seems that counties that implemented neither structuralism nor neoliberalism succeeded in their pursuit of development while countries that adopted policies that were considered to be wrong succeeded in their development endeavors (Stiglitz, 2002; Stiglitz, 2008).

Furthermore, historical evidence on the East Asian countries even before the Washington Consensus shows that there is an association between various policies implemented and their success stories. Stiglitz (2008) asserts that in the 80s and early 90s, the local level state-owned village and township enterprises were crucial to China's economic success. Further, instead of privatization of land, the individual responsibility system was much more suitable for an immense productivity increase in agriculture. Analogously, it is hard to conclude that Taiwan and Korea succeeded in becoming prominent industrial players without strategically implementing active industrial policies and strategies. Those countries were also able to ensure high savings rates, and it has to be linked to policies that intended to stimulate domestic savings (WB, 1994). Moreover, the governments of East Asia were able to provide capital to firms based on their competence in exporting, especially in the strategic sectors with a high level of technology that has higher spillovers effects (ibid).

One could argue that all of this has been an accident and that in a more liberated market free from government interventions and industrial policies, the East Asian countries would be even more successful. However, failures of the Washington Cosuncus reforms in both Latin America and Africa strengthened the doubts about the credibility of its strategies. For instance, during the 90s, a decade after the reform, growth in Latin America was only half of the growth level in the 60s and 70s (Stiglitz, 2002; Stiglitz, 2008). Despite the limitations related to import substitution policies, Latin America's economies would have evolved into export-based strategies as they did in East Asia. However, it is the debt crisis rather than deficiencies of their strategies that hampered their rapid growth (ibid). Thus, results under the Washington consensus reforms was even more short-lived, and the failure of reforms are highly related to factors such as premature openness to the global markets, which led to terms of trade volatility, resulting in capital shortage (Cimoli et al., 2009; Lin, 2011, 2019). The shortage of capital among developing countries later led to the establishment of the WB and IMF, which reflected

the recognition of the reality of market inefficiencies and failures (Stiglitz, 2002; Williamson, 2000).

However, the establishment of WB and IMF could not fully solve the issue of capital shortage, and by that time, funds were allocated for specific types of investment in a limited number of countries. Consequently, several developing countries confronted credit constraints, which eventually led to the failure of the projects, which in the early 80s started to demand additional policies, known as the Washington Consensus Plus (Stiglitz, 2002; Williamson, 2009). Later, based on feedback, the Washington Consensus plus added several policy instruments such as improved safety nets, i.e., women empowerment programs, and measures for promoting female education (Stiglitz, 2008).

The failure of these Washington Consensus Plus policies eventually initiated a new layer of reforms related to public institutions and governance. Belatedly, the Washington Consensus recognized the need to improve the quality of governments and institutions. Many underdeveloped countries failed to ensure economic development, not because of too much government intervention but because of a too scarce quality of such intervention (Birdsall & Fukuyama, 2011; Stiglitz, 2008; Taffet & Walcher, 2018). Nevertheless, the emphasis continued to be on making markets work rather than on making governments work. Further, the causal relationship between policies and institutions on the one hand and institutions and society, on the other hand, was not sufficiently identified and addressed. For example, developing countries were recommended to build good institutions, yet there were few explanations on how such institutions should have been formed. Like the controversies on what good policies are, there was also controversy on what good institutions are. Democracy was intensely preached, but the more significant concern for the citizens of most developing countries was an enhancement in economic performance. Further, the preconditions set by the international financial institutions to get access to loans and financial assistance required good public institutions that could manage things effectively (Stiglitz, 2008). If developing countries failed to cope with both the conditionalities and the requirements of good institutions, they would have lost credibility externally, as they would have been blamed for not doing what was supposed to be correct. But if they consented to the preconditions, they would have lost credibility internally, as they would have presented themselves as blind followers of the orders (ibid). Eventually, when the reforms failed to reach what was promised, as it happened in many countries, again, the states lost their credibility. Hence, the deficiencies in the public actor were partly created by the Washington institutions.

In general, a strand of literature (Birdsall & Fukuyama, 2011; Naím, 2000; Stiglitz, 2008; Taffet & Walcher, 2018; Williamson, 2004, 2009) indicates at least four implications of the post-Washington Consensus era. First, it is difficult to achieve successful development strategies simply within the boundaries of the Washington Consensus. Instead, the strategies have to be designed together with the developing countries in order to produce successful results. Second, based on the first implication, one-size-fits-all policies are destined to fail, since specific policies that work for one country may not work for others. Third, there are some areas about which economics has not yet designed a strong theory and collected sufficient empirical evidence to construct universally applicable policy prescriptions. Instead, the emerging consensus in these cases is that countries should be left with the possibility to experiment, use their own discretion, and investigate what might be applicable for their context independently. Fourth, there was limited understanding of the dynamics of economic and production structures within developing countries, and the focus has been on too narrow sets of objectives and instruments.

There are essential externalities in these dynamic processes that require the government's decisive role. Accordingly, the post-Washington Consensus acknowledges that there is a role for the government. However, it is not specified what these roles are beyond the previously defined ones, i.e., protecting property rights and enforcing contracts.

2.4.3. New structural economics approach

The rise of the Washington Consensus in the 1980s and 1990s was followed by the decline in the notion of structuralism and structural change. Nevertheless, the topic has revived since the early 2000s, thanks to the mixed and debatable results in terms of the economic performance of the policies designed by the Washington Consensus (Priewe, 2015). Moreover, the economic challenges arising from the global crisis have created an increasing demand for a new framework of rethinking and redesigning development policies. As a result, the New Institutional Economics approach (NIE hereafter) emerged to understand better the importance of countries' structural differences at the various stages of development. These differences include the appropriate policies and institutions and related incentives and constraints on the private sector in the structural change process. NIE is a mainstream-based approach to economic structure and structural change, emphasizing the significance of factor endowments and the differences in economic, mainly industrial structures (Lin, 2011).

According to Justin Lin (2011), the approach is primarily based on three fundamental economic perceptions. First, the factor endowments of an economy's structure evolve or change from one level of development to another; therefore, the industrial structure of an economy is different at different stages of development. Second, each given economic development level is a step from being a low-income agricultural economy to a high-income industrial economy, and there is no jump from a "poor" or "developing" economy to a "rich" or "industrialized" economy. This means that developing countries' industrial upgrading and infrastructure development objectives should not necessarily be drawn from high-income or industrialized nations. Third, industrial upgrading and improvements in infrastructure drive structural change dynamics, which drive economic development as a dynamic process. There are two types of infrastructure; "hard" and "soft." The former includes tangible infrastructures such as airports, highways, telecommunications, electricity grids, and other public utilities.

The latter consists of intangible infrastructures such as institutions, value systems, social capital, rules, regulations, and other social and economic structures.

For NSE, the best way to achieve structural change and economic growth is to ensure technological upgrading and infrastructural improvements, which in turn require inherent and consistent coordination and addressing externalities to minimize transaction costs and to maximize returns to capital investment in developing countries domestic economy (Lin, 2011). Hence, the government actively facilitates structural changes in addition to a well-functioning market mechanism.

NSE starts its analysis by claiming that countries' factor endowments at the initial stage of development are fundamentally characterized by a relative shortage of capital accompanied by a relative surplus of labor or natural resources. As a result, labor or resource-intensive production activities are predominant in developing countries, mainly in traditional agricultural activities, including farming, fishery, animal husbandry, and mining with limited economies of scale (Lin, 2011). In addition, they usually have small-sized firms engaged in mostly informal market transactions limited to local markets. Both hard and soft infrastructure needed to promote formal production and market transactions is also restricted, inadequate, and not advanced. However, these countries have the advantage of backwardness due to the possibility of technological convergence through various industries with different levels of capital intensity. Nevertheless, they need to upgrade their factor endowment, and their capital stock needs to grow faster than the labor surplus (Ju et al., 2009).

While climbing up the industrial ladder, they also need to increase their production because of the indivisibility of capital equipment. Through such a process, firms expand and become larger, requiring a bigger market and corresponding changes in their infrastructures such as transportation, power, financial systems, and other institutions (Lin, 2011, 2019). According to Lin (2011), the economy becomes more competitive if firms decide to engage in industries and embrace technologies in line with their comparative advantage, defined by the dynamics of their factor endowments. As the number of competitive firms and industries increases, the share of their domestic and international market increases and hence generate the highest possible revenue in terms of profits and wages. If it is made on the industrial structure that is in line with the endowment structure at that particular time, reinvestment of surpluses generates the highest return possible. Gradually, this approach increases the competitiveness of firms in more capital and skill-intensive products by enabling the accumulation of physical and human capital and upgrading industrial structures and factor endowments.

The problem in this picture is that the priority of any business firm is profit, and hence it is difficult for firms in developing countries to spontaneously penetrate industries and utilize technologies in line with countries' comparative advantage (Lin, 2009; Lin & Chang, 2009; Gerschenkron, 1962; Krugman, 1993).

Many other changes occur when countries climb up the industrial and technological ladder. Among these are an increase in the production scale and market size with more capital requirements and more sophisticated technology. In addition, a smooth and flexible process of industrial and technological upgrading demands spontaneous improvements in educational, financial, and legal institutions and hard and soft infrastructures (Harrison and Rodrı´guez-Clare 2010). As a result, firms can minimize transaction costs in the newly upgraded industries and approach the production possibility frontier in domestic and international markets (ibid).

Indeed, firms at individual levels cannot internalize the cost of all these changes effectively, and it might be complicated to coordinate among many firms to tackle these new challenges spontaneously. Hence, it is the role of the government to propose the necessary transformations or proactively coordinate economic actors. In addition, successful industrial upgrading requires the pioneer firms to overcome the information constraints regarding which new industries are in line with the economy's factor endowment and comparative advantages (Lin, 2011, 2019). Accordingly, the knowledge acquired by pioneer firms provides information externalities that determine the success or failure of new industries (Rodrik, 2004). Therefore, the government needs to offer incentives to pioneer firms for the information externalities they

generate and play a proactive role in improving both hard and soft infrastructures (Harrison & Rodriguez-Clare, 2010; Lin, 2009; Lin & Monga, 2010; Rodrik, 2004).

From the international trade perspective, the NSE assumes that country's endowment structure that is endogenous to their comparative advantage determines the type of goods and services they export and import (Lin, 2011). In other words, the countries' endowment structures reflect changes in their comparative advantage through which they can utilize the benefits of backwardness and realize faster technological upgrading. Therefore, openness and international trade can be essential channels for convergence. However, the NSE approach claims that when countries opened up their markets and started climbing the industrial ladder, they suffered from distortions derived from old structuralist import-substitution strategies (Lin, 2019). NSE instead suggests a gradualist dual-track approach through a transitional process and trade liberalization reforms (promoting both import-substituting and export-oriented industries), thereby achieving stability and dynamic transformation. During the transition, the state may consider providing some temporary protection to nonviable industrial firms in the priority sectors to avoid their collapse while liberalizing simultaneous entry to other more competitive sectors that were previously controlled and suppressed. At the same time, liberalizing the entry of private enterprises, joint ventures, and FDI into labor-and resource-intensive sectors in which the economy has comparative advantages (Lau et al., 2000; Lin, 2009; Naughton, 1995). This approach can also tackle the issue of the Dutch disease, as already explained - affects primary products and natural resource exporting countries through higher price volatility of commodities, a consistent decline in terms of trade, and exchange rate appreciation (Ocampo & Parra, 2003; Prebisch, 1950; Singer, 1950). This is also related to the recent debate on whether resource-based development strategies can enhance economic performance (Auty, 1990; Gelb, 1988). Since 2002, the global market witnessed a commodity price boom driven by its stable and robust performance, which led to rapid growth and industrialization in many developing economies, such as China, that successfully secured steady domestic and international demand (Kaplinsky and Farooki, 2011; UNCTAD, 2005). This has been coupled with growing financial concerns, driven by increasing investment in commodities that increases the upward trend of gains from the commodities (Tang & Zhu, 2015; UNCTAD, 2015; Zhang & Balding, 2015).

Several other countries discovered oil and fuel reserves and minerals and allocated substantial resources to take advantage of the current favorable price and terms of trade conditions. In this sense, some authors support resource-based industrialization, given that

natural resources create the basis for an industrial development strategy (Kaplinsky & Farooki, 2011; Perez, 2008). Furthermore, such literature has argued that there are productive linkages between commodity industries and other industries, making commodities a potential engine of industrialization and structural change (Kaplan, 2012).

Despite the possibilities of commodity price booms to foster industrialization, it would be misleading not to consider the trade structure because the effect depends on the price trends of both exported and imported commodities. Here the role of the government is essential, mainly through industrial policy. Nevertheless, developing countries need to use industrial policies strategically, i.e., by considering their specific context and activities. It is crucial to identify and target strategic industries that best fit the latent comparative advantage of economies. In comparison to the international market, a latent comparative advantage mainly refers to an industry that enjoys the lowest cost in terms of factors of production.

In this regard, the most crucial question is how governments can identify industries compatible with their economy's latent comparative advantages and play an effective economy-wide role? To answer it, the new structural economics pioneer Justin Lin (2017) classifies developing countries industries into five categories (comparative advantage-losing industries, comparative advantage-defying strategic industries, leading-edge industries, short innovation cycle industries, and catching-up industries) and provides at least five recommendations for the states in order to facilitate their economic growth. According to their respective growth bottlenecks, his recommendation depends on the distance of the targeted industry from the global technology frontier. The first recommendation is that the state identifies and address institutional bottlenecks and binding constraints related to financing, infrastructure, and human capital to boost firms' capacity to catch up and converge. Second, in the sector where the country is already at the global technology frontier, the state should support R&D, particularly product and technology development research, to maintain the leadership position globally. Third, if the sector has already lost its comparative advantage, the state should help firms shift to high value-added sectors or relocate them to other countries with relatively low costs. Fourth, when a country has a large domestic market and abundant human capital, the government can establish incubation and industrial parks to encourage venture capital development and short innovation-cycle industry through protecting intellectual property rights. Fifth, the state should directly subsidize its R&D with fiscal support to encourage a long innovation-cycle industry, despite the compatibility of the industry with the country's comparative advantage.

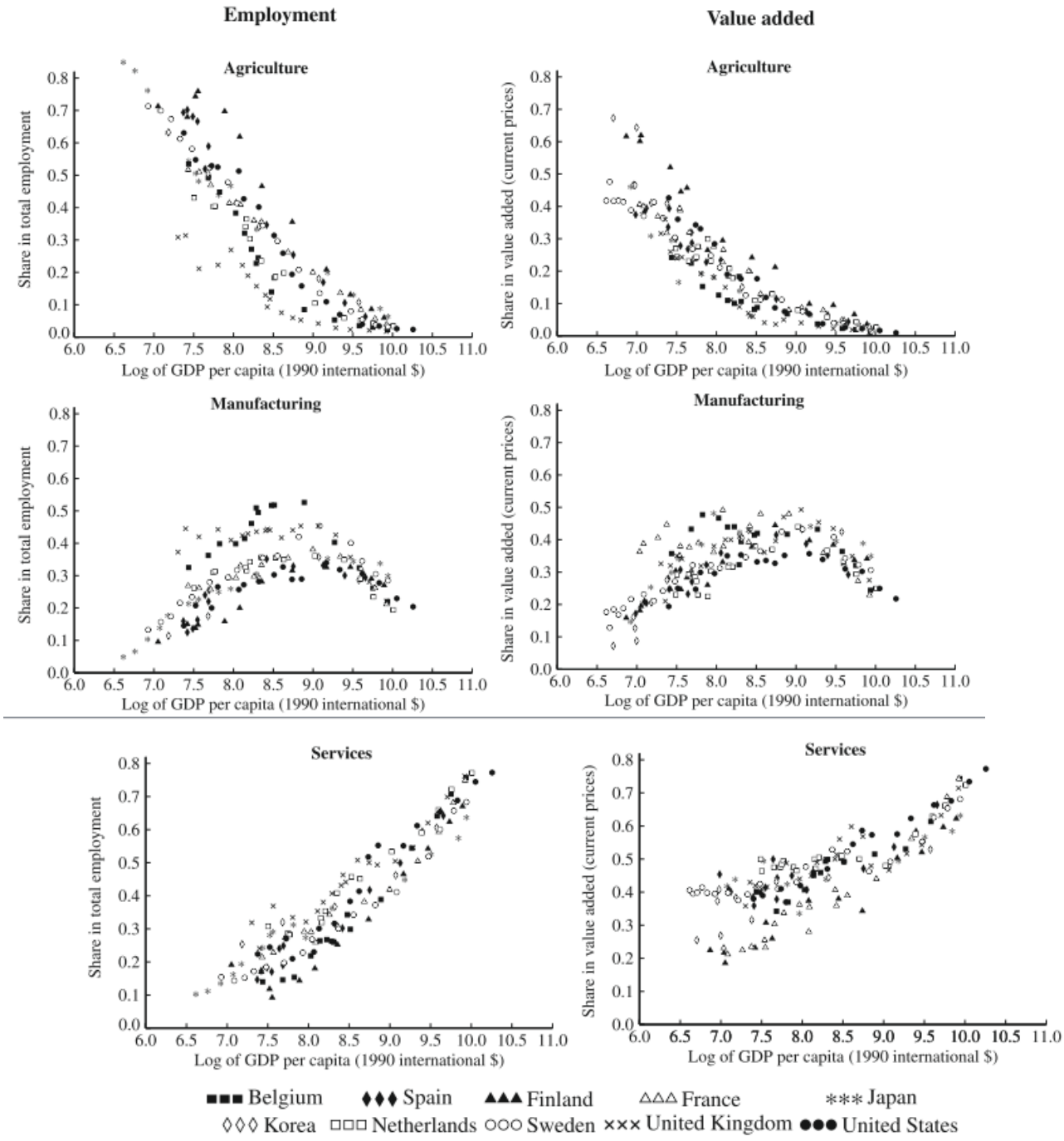
In conclusion, in developing countries with weak institutions and poor infrastructure, the government may address the major institutional bottlenecks and binding constraints rather than trying to improve them nationwide. In addition, the government may foster technological innovation and industrial upgrading in strategically chosen industries and locations, generating rapid capital accumulation, fiscal revenue expansion, job creation, competitiveness, and export diversification. Such an approach eventually leads to a virtuous development cycle that may trickle down its positive effect on the whole nation.

2.5 Studies on structural change in developed and newly industrialized countries

For the last two centuries, economic growth has been linked to a rise in the output and employment share of manufacturing- a process known as industrialization (Naudé, 2019). Basically, output and employment shares of manufacturing in developed countries have followed a hump shape pattern; it starts increasing at lower levels of GDP per capita, reaches its peak at a relatively higher level of GDP per capita, and start decreasing after that threshold (Jha & Afrin, 2017; Rodrik, 2016). In other words, industrialization follows an **inverted U-shaped path**, where the peaking point corresponds to the turning point of manufacturing as it exhausts its role as an engine of growth (Nguimkeu & Zeufack, 2019; Rodrik, 2013d, 2016). According to Jha & Afrin (2017), also the Newly Industrialized Countries (NIC hereafter) of East and Southeast Asian countries (including China) and some Latin American nations have experienced this pattern of structural changes.

Herrendorf et al. (2013) show the relationship between the output and employment share in agriculture, manufacturing, and services at current prices. They used data for ten developed economies over the 19th and 20th centuries. (see Figure 2.1).

Figure 2.1 - Sectoral employment and value-added shares over the 19th and 20th century for 10 developed countries



Source: Herrendorf et al., (2013, p. 10).

Most of these countries have experienced remarkable economic growth with particular prosperity of their industrial sector highly linked to their industrial strategy of promoting an

early switch from import-substitution to export promotion (Samouel & Aram, 2016). Both in advanced economies and in NIC, industrialization facilitated enhanced productivity growth and convergence among the developed countries, i.e., US and UK, on the one side, and developing countries, i.e., Japan, South Korea, Taiwan, and China, on the other side (Rodrik, 2016).

The level of industrialization is mainly defined as an economy-wide increase in the share of manufacturing value-added and employment. The main reason is that since the Great Divergence or the take-off of the West, manufacturing has been the major driver of economic growth (Naudé, 2019). This has been the case of the primarily industrialized countries, i.e., the US, UK, and Germany, and of the latter emerging economies after the Second World War, which are experiencing a growth miracle in East Asia, i.e., Asian Tigers (Szirmai et al., 2013).

A commonly associated phenomenon with the success of these countries is the ability to diversify away from primary products and natural resource export. This is realized by shifting to a high productivity-high-value-added sector with a broadened production of manufactured goods with a positive spillover effect throughout the economy (Alagidede et al., 2020; Nicet, 2020; Rodrik, 2013d). These countries, especially the NICs, are able to utilize the opportunities arising from trade openness, easier access to GVCs, and FDI inflows, and hence they have been experiencing sustained growth (Nicet, 2020). More specifically, the government of these countries are able to enhance industrialization and accelerate structural change through various policy instruments and institutional arrangements (Hidalgo et al., 2007; Memedovic & Iapadre, 2009; Young, 1994).

Despite the heated debate on the extent and type of government intervention in economies, the success of NICs in fostering industrialization and structural change can be policy guidance for other developing countries currently struggling to achieve their industrialization goals (Aryeetey & Moyo, 2012). For instance, Nissanke (2011) claims that in East Asia, finances arising from domestic resources have magnificently contributed to capital accumulation in manufacturing growth which in turn led to very rapid productivity growth (Aryeetey & Moyo, 2012). In these countries, the rapid productivity growth starts within the manufacturing sectors, particularly from the labor-intensive and resource-based light manufacturing activities, i.e., food, wood, paper products, and textiles. Form these sectors, they gradually build up their production capabilities in manufacturing and then continually upgrade towards higher value-added technology-intensive activities (Aryeetey & Moyo, 2012).

This pattern is what Akamatsu (1962) called the **flying geese paradigm**, whereby the latecomers' catching-up process takes place in three aspects. The first is the intra-industry

aspect, representing a development of products within a single industry (the leading industry) growing over three times faster than others. The second is the inter-industry aspect that captures the sequential appearance and development of industries (followers of the leading industry) gradually being diversified and upgraded from consumer to capital goods and from simple to more sophisticated products. The third is the international aspect represented by the subsequent relocation of industries from developed to developing countries; particularly, when production costs increase in advanced economies, it leads to the migration of production of goods into less advanced economies.

During the 1980s, this pattern was observed in East Asia, where productions were moved from Japan moved to Singapore, Hong Kong, South Korea, and Taiwan. Hidalgo & Hausmann (2009) also proposed the product space approach maps the distance between all exported products to chart the natural path of industrial diversification (Chen et al., 2020). Instead of classifying products by the type of technology utilized, this approach classifies them based on the characteristics of the final product, and it also defines the proximity among products based on their classifications in the international market. According to Chen et al. (2020), the products with less connected capabilities in the product space lie in the periphery, whereas the products with more interconnected capabilities lie in the core of the product space. Then, starting from the goods that are already being produced using existing capabilities, firms start to promote the diversification of the economy by starting to manufacture the nearby products. This approach is also utilized by East Asian countries to foster industrialization and economic development through acquiring more complex sets of capabilities that enable them to explore and take advantage of new activities related to higher productivity levels (Felipe et al., 2009).

Several other factors are identified to explain the success story of these countries. Nissanke (2011) claims that an agrarian transformation preceded the structural change with remarkable agricultural productivity growth. This increase in agricultural productivity was due to land reforms and mechanization of agriculture, i.e., pro-small holder technology. These technologies help to generate a 'surplus workforce' in agriculture and to keep the low level of food prices and real wages in the industry (Aryeetey & Moyo, 2012). Nissanke (2011) claims that domestic savings have contributed to an extensive investment in very high-productive sectors. Investment in the corporate sector was also promoted through domestic resources from profits mainly mobilized by the banking system. Hence, growth has been investment-led and much less dependent on external debt. These factors that are mainly related to investment collectively led to capabilities and productivity-enhancing growth patterns.

Aryeetey & Moyo (2012) argue that the most interesting aspect of East Asian success has been the strategic choice of sectors through which they engage the global market and the way in which they mobilize the revenue. This also applies to the way they attract FDI, mostly into sectors with high potential for employment generation.

Since the mid-1990s and the first half of the 2000s, the fast-industrializing economies, particularly China, deployed both vertical and horizontal industrial policies more openly and succeeded in transforming their resource-based and light manufacturing into high productivity sectors (Andreoni & Tregenna, 2018). Until the mid- 2000s, the theoretical debate on selecting winners, vertical versus horizontal interventions, and market failures, dominated the development and industrial policy literature (Chang, 1994; Chang & Andreoni, 2016).

In the late 2000s, there were two major shifts in both theory and practice of industrial policies following the global financial crisis and the subsequent economic depression. The first is concerned with the policy practice through which several economies introduced strategies to tackle deindustrialization, increase their failing industrial competitiveness, and, hence, restructure industrial development. The second is put only in theoretical terms and refers to the gradual shift from an innovation-oriented framework to the rediscovery of the crucial role of production within economies that are innovation-driven (Andreoni et al., 2018).

At this time, medium and high technology sectors, i.e., ICT, complex-system products, and machinery industries, were at the frontier of the fast-industrializing countries' industrial policy frontiers, and these policies enabled them to enhance value-added domestically and competitiveness in the global market (Zhou et al., 2016). The overall worldwide shift in the industrial policy practice has been identified as a 'new industrial policy revolution' by a number of scholars (Stiglitz et al., 2013). This revolution revived the analysis of case studies, specific policy instruments, and institutional arrangements through learning from factors contributing to successes and failures. However, these contributions were driven by the market failure and the information externalities paradigms and overlooked crucial elements of policy domains in the earlier debates of industrial policy (Andreoni and Tregenna, 2018).

In recent years, the focus has been shifted to magnificent long-term worldwide challenges, i.e., global warming and the possible outcome of emerging technologies, i.e., digitalization and biotechnology (Andreoni, 2017). Furthermore, the so-called Fourth Industrial Revolution has been making the economic divergence between emerging economies and the less developed countries wider. The former countries have built up substantial technology and production bases to take advantage of the increasing technological prospects.

The latter has been largely distracted by the consistently evolving technological paradigm without having built the necessary domestic production structures and the capabilities to compete in the international markets (Chang & Andreoni, 2016).

Regarding the latest contributions on the industrial policy domain, Andreoni et al. (2019) identified three areas that have been overlooked. First, to benefit from technological changes and global production, the historical and context-specific dynamics of production structure and the related specific bottlenecks should be considered. There is a necessity for building production capabilities and institutions in order to take advantage of emerging technologies through absorption, adoption, and diffusion. Furthermore, there is a need to address the new industrial policy challenges, for instance, the threat to the social and economic sustainability of industrial polarization across and within countries. Second, the feasibility of the political economy of production in specific countries and sectors with a contextual understanding of the institutional political economy dynamics is required. Governments need to set different priority targets for different sectors and assess the feasibility of certain types of production structures. Third, there is a need to build an integrated industrial policy framework that incorporates the interdependency and changes in micro-meso-macro structures and institutions and their context-specific dynamics. A transformation of a production structure requires several policy instruments, including macroeconomic management and financial regulations and institutional development. The lack of consideration of these policy instruments and institutional arrangements and how they affect and are affected by production transformation is another shortcoming of recent contributions to the industrial policy discussion.

Chapter three
INSTITUTIONS, STRUCTURAL CHANGE AND ECONOMIC DEVELOPMENT

3.1 Institutions and structural change

The nexus between institutions, structural change, and economic development is essential to the understanding of how developed countries transformed their economies and, more importantly, to draw a lesson that can be an input to design policies for contemporary developing economies.

In development economics, the importance of institutions for development, particularly for structural change, was the central focus area of economists in the 1940s-1960s. Indeed, it was also the major reason for the emergence of development economics that recognizes the decisive role of different socio-economic and political institutions in commanding different economic outcomes in different countries (Chang & Andreoni, 2019). In addition to various factors that make economies differ, i.e., resource endowments, population, technology, the norms, customs, rules, and institutional arrangements that determine people's rights and obligations determine the prospects of economic development (Gunnarsson, 1991). As a result, institutions have been developed throughout history, shaping and being shaped by the economic structures of developing countries quite differently from the so-called developed countries. More specifically, the commonly held view is that the prospects of structural change largely depend on the social and institutional arrangement under which factors of production and economic structures interdependently operate.

Despite their crucial role in the functioning of economies, institutions have largely been left out of the economic analysis because it is challenging to assess them quantitatively. This often led to the deprivation of a more profound and contextual understanding of the dynamics of structural change and economic growth in developing countries.

The neo-classical hegemony in economics neglects the institutional factors in economic analysis, and institutions are considered as mere details, and thus they are taken as given (Gunnarsson, 1991). Hence, neoclassical economics has been based on the assumption of

utility-maximizing individuals in a static institutional arrangement (Urbina & Ruiz-Villaverde, 2019).

More specifically, the notion of methodological individualism is highly favored to the extent that the social, cultural, political aspects and the role of norms and habits are taken for granted. The theory constantly asserts to hold efficient and contingent outcomes for all types of exchange, which, in turn, invalidate the need to endogenize institutions into the analysis of economic theory. Instead of the dynamics and disequilibrium trend, the neoclassical focus on statics and equilibrium points; hence there is no necessity to consider the significance of the institutional change. Therefore, conventional analysis has been focused on analyzing growth within a given institutional setting rather than with a shift in economic structures (Gunnarsson, 1991). Accordingly, the conventional neoclassical theory undertakes an institution-free analysis, which excludes several relevant development issues.

In recent years, some crucial endeavors made advancements in bridging the gap between neoclassical and institutional economics. First, there is an increasing consensus that recognizes the predominant role of institutions in understanding the socio-economic and political factors that determine structural change and development (Gunnarsson, 1991). Second, even neoclassical economists started to support this stand, and "institutional economics" is becoming one of the most important branches of economics.

The rise of the New Institutional Economics since the 1980s has had a remarkable influence on modern socio-economic and political analysis (Reinert, 2006). As seen in chapter one, its institutionalism is "new" not because it is a new version of the Old Institutional Economics, but due to its association with neoclassical economics, instead of trying to replace it like old institutionalists.

Due to this neoclassical connection, NIE considers institutions as exogenous factors to the production structure of an economy, independent from the type of productive structure they assist and construct. Unlike them, both the evolutionary' and the old institutional economics approach assume institutions as endogenous and as integral parts of a specific production structure. Moreover, different modes of production and technological systems require different types of institutions, and institutions are also the outcomes of changes in various modes of production and technological systems. Thus, institutions play a vital role in structural change and, thus, economic development. At the same time, they are both outcomes and drivers of structural change and reveal themselves in various ways in various contexts and times (Reinert, 2006).

In this framework, this chapter has two principal aims based on this economic structure-based view of economic development, which emphasizes the relationship between institutional change and production transformation. The first aim is to discuss the various approaches to how institutions change. The second is to examine how institutions play their enabling and constitutive role, with specific reference to the developing countries' structural change and development process.

3.2 Approaches to institutional change

The basic assumptions of neoclassical economics have been questioned due to its frequently witnessed incapability to address the major national and global economic problems. Specifically, the notion of methodological individualism is being set aside in order to study the institutional arrangement required for structural change and development. In this regard, institutions, including cultural, social, and political norms and habits, are becoming the main interests of contemporary institutional economists (Reinert, 2006). An institutional analysis that considers individuals' goals and interests but that takes the social institutions that shape them for granted would be intellectually impoverished. Indeed, the essential task of institutions is to enable individuals to construct and reconstruct their aims and give them the possibility to satisfy the needs and desires they constructed. The complicated nature of this interdependence does not justify its exclusion from the economic analysis.

The following section discusses the various approaches to institutional change, two of which are based on mainstream economics (NIE) and the other two on traditional institutional economics (OIE). Such approaches examine how institutions, individuals, and societies interact with each other in economic systems (Evans, 2006).

3.2.1 The functionalist approach

The functionalist approach views institutions as constraints to ensure efficiency in the sense that their aim is to guarantee the "efficient" functioning of the market; otherwise, they would not exist (Chang & Evans, 2000).

This view originates from the Coase Theorem of transaction cost, in which institutions arise when the mechanisms of the market fail to coordinate all the possibilities of efficiency-

enhancing transactions available (Acemoglu et al., 2005). According to this view, self-interested individuals are able to utilize every opportunity to enhance efficiency, including the establishment of new institutions, i.e., firms, if they are able to increase the economic gains from trade more than markets (ibid). In this sense, therefore, all the existing institutions are efficient.

Various versions of this view have been suggested by economists, especially the ones in NIE. In fact, the assumption of efficient economic institutions is a standard methodological approach because while examining an institution, economists try to understand the underlying conditions that led institutions to be efficient. For example, Demsetz (1967) argues that common property led to the emergence of private property rights, i.e., it was efficient to privatize land, when it became sufficiently scarce and highly valuable. More recently, Williamson (1985) argues that firms arise as an efficient solution to contractual issues that affect markets, in particular the ex-post opportunism that may occur under relationship-specific investments. Grossman and Hart (1986) also argue that given the underlying informational and contractual constraints, it is the need for efficiency that puts in charge the governance of firms or markets. Another famous view of efficient institutions is included in the earlier work of North & Thomas (1973). They suggested that feudal economic institutions, i.e., serfdom, were an efficient contract mechanism between the serfs and the landlords. In exchange for the serfs' labor on their lands, the landlords provided a public good, protection. Hence, this was an efficient way to organize exchanges in the absence of a modem fiscal system (Townsend, 1993).

However, neither Williamson nor North and Thomas explain how different parties with different interests can reach a consensus to realize efficient economic institutions. This is problematic because it is not by individual bargains but through collective choices that many economic institutions required for development emerge, implying the possibility of free-riding issues. The related idea, forwarded by Becker (1958) and Wittman (1989), is that democratic systems, characterized by competition among political parties and pressure groups, will lead to efficient public policies and collective choices. According to them, political leaders have incentives to propose better institutions that generate an extra surplus, making them more attractive to their voters, the same idea with Coase's Theorem of the transaction cost.

Such an idea has been later developed by Acemoglu (2003) as the Political Coase Theorem. This theorem claims that the difference in the interest of various societal stakeholders resulted in the preference of various institutions. For instance, political leaders may have

different views and hence disagree concerning the applicable type of institutions in their society. Therefore, the development of a certain society can be achieved only when the institutional choice of leader turns out to be the right one. The crucial point is that, as proposed in Coase's view of efficient institutions, strong collective forces prevent the execution of policies that are considered as bad at the societal level.

However, there are empirical and theoretical limits to the Coase Political Theorem. First is the inherent commitment problem in politics, which is related to the refusal of individuals who have the political power to commit to using their power for the best interests of society. Instead, they may choose economic institutions which increase their own personal gains, usually at the expense of society, making the Political Coase Theorem inapplicable. Second, Political Coase Theorem poses little emphasis on the effect of political or economic institutions on economic outcomes because, in this view, the way in which efficient economic institutions are selected (among best possible economic institutions) is inapplicable and unrealistic in the real world especially in choosing political institutions that may have the collective economic outcome (Acemoglu et al., 2005).

Furthermore, if the transaction costs involved in building an institution are larger than the benefits it delivers, and if it is not capable of enhancing efficiency in a given context, it should not exist, and it is not really worth having it in the first place (Acemoglu et al., 2005). However, this position is not sustainable both theoretically and empirically. From the theoretical point of view, bounded rationality is one of the major reasons why institutions exist, and if individuals are not capable of doing the standard optimization exercise, which only involves resource costs, they are equally not able to engage in a “meta-optimization” exercise involving both resource costs and transaction costs (decision-making costs) (Chang & Evans, 2005). From the empirical point of view, there are too many examples of inefficient institutions whose persistence does not actually serve anyone's interest (Acemoglu et al., 2005). As a result, the proponents of efficient institutions acknowledge that inefficient institutions may exist; however, they argue that, in the long run, there will be selection based on their success and failure, in a sort of an "evolutionary" process (Alchian, 1950). However, even this more sophisticated evolutionary version has an apparent limit because institutions are not easily malleable. In the economic system, *"the rate of institutional change will exceed the rate of adjustment to it"* (March & Olsen, 1989, p. 168). In this sense, it is impossible to assume that institutional evolution is moving in an optimal direction towards efficiency (Chang, 1995).

According to Chang & Evans (2005), a more sophisticated version of the efficiency-driven approach, recognizes that not all institutional changes enhance efficiency. Many of them will not be optimal even in the long run, and thus the simplistic "evolutionary" argument is rejected. According to those embracing this approach, such as Brian Arthur, Paul David, Joel Mokyr, and others who mainly work on technology issues, the reason for this is that there is path dependency in the evolution of institutions. In their view, certain institutions, such as technological regimes, may prevail over others not because of their inherent efficiency, but because of certain irreversible "events" in history (Acemoglu et al., 2005; Chang & Evans, 2005). Furthermore, when irreversible investments have already been made in certain physical, intellectual, and relational "specific assets" (Williamson, 1985), and if the cost of introducing alternative institutions is higher than enhancing the existing institutions, investors will choose to preserve the existing institutions (Chang & Rowthorn, 1995). Such perspective endeavors to better understand the process of institutional changes; however, at least in its current form, it remains very "economistic", in the sense that technological factors seem to be the ones driving the process of institutional change (Chang & Evans, 2005). In this regard, individuals are seen as operating on the basis of purely "economic," rational calculations, even if individual calculations do not necessarily lead to socially optimal outcome (Acemoglu et al., 2005).

Here, the fundamental problem is that there is no room for a human agency: what people believe instead of what they "should" believe, given the technological imperatives, does not make any difference for institutional change. As a result, the most sophisticated version of the efficiency-driven approach began to extend the argument to the "cultural" dimension, acknowledging the importance of worldviews possessed by human agents (Chang & Evans, 2005). The approach accepts the well-known assumption that human agents have bounded rationality: institutions make the complex world more intelligible by restricting agents' behavioral options and by confining their insufficient attention to a truncated set of possibilities (ibid). According to this vision, bounded rationality makes it inevitable for agents to operate with a mental "model" of value system, ideology, and worldview that may not necessarily be a perfect model of the actual world (Chang & Evans, 2000). Although it is not necessarily efficiency-enhancing from an "objective" point of view, when agents embrace a particular worldview, they may prefer a specific institution when it is in aligned with their "moral values" or worldview (ibid). In this regard, the proponents of the "culturalist" version of the efficiency-driven approach go one step further and consider the "endogenous formation and alteration of preferences", in which the worldview of agents is not independent or exogenous to the

institutions under which that they have been operating (Bowles & Gintis, 2000; Hodgson, 1988).

Accordingly, institutions embody specific "moral values," and by working under certain institutions for a given period of time, agents are likely to begin to internalize those values; this is what Chang and Evans (2005) called the **"constitutive"** role of institutions. In this framework, only the definition of efficiency assumes a subjective dimension, in the sense that even with its "subjective" elements such as moral values and worldviews, the approach is ultimately driven by efficiency. In this regard, it is still an efficiency-driven approach, but different from the simpler versions of the efficiency-driven institutionalist theory.

3.2.2 The instrumentalist approach

The instrumentalist view of institutions is also known as an interest-based view, proposing that institutions are created and changed to display the exogenous interests of powerful elites (Chang & Evans, 2000). According to Chang and Evans (2000), the most simplistic interest-based approach to institutions and institutional change is found in the Neoclassical Political Economy that assumes that the self-seeking behavior is the only human motivation and that people operate with the same degree of selfishness both in the political domain and in the private domain (Buchanan et al., 1980).

In this approach, institutions are devices to pursue the selfish interests of groups that are politically organized and powerful enough to initiate changes in institutions in a way that accommodates their own interests. This is the so-called **rent-seeking theory** of Buchanan, Tullock, and Krueger (Buchanan et al., 1980). This approach assumes that interests are not socially structured, but exogenously given at the individual level. Hence, interest groups have no internal constraints in their agenda-setting, decision-making, and execution of plans (March & Olsen, 1989). Moreover, according to this approach, the proponents of this view believe that institutions can be quickly reformed or transformed, due to the political power with an organized system that supports institutional change. In this regard, institutions are perceived as infinitely malleable, as far as there is a good reason to change them. Accordingly, institutions change not on the basis of national and global efficiency, but of sectional interests, and are therefore fundamentally "biased" towards certain groups.

However, in this approach interests are not exogenously given, but "structured" by existing political and social institutions; this is what Chang and Evan (2005) called the

"structure-interest-based" version. Such a view differs from the Neoclassical Political Economy one, given that it does not see institutions as easily malleable as the latter view does, because it perceives interests as endogenously structured by existing institutions.

The shift in the balance of power between existing interests, which is necessary for an institutional change, is not straightforward or instantaneous. Instead, it has to involve changes in a deeper and mainly internal institutional structure. One good example can be the proposition of the classic article "The Colonial Origins of Comparative Development" by Daron Acemoglu, Simon Johnson, and James Robinson (2001). The authors argue that where there were large amounts of resources such as land suitable to crops and mineral deposits in high demand on world markets and large indigenous populations to exploit, European colonialists created "extractive institutions". The purpose of such institutions was to extract the indigenous people's wealth, natural resources, and labor. On the other hand, were settlers of the colonialist had to survive mainly on the basis of their own efforts, "inclusive institutions" or "institutions of private property" emerged, to help them acquire private property and to establish their own businesses and various types of investments (ibid).

In their consequential paper (Acemoglu et al, 2002, P. 17), *'institutions of private property are defined as a cluster of social, economic and political institutions ensuring that a broad cross-section of society has effective property rights.'* Acemoglu et al. (2003), explicitly divide the preconditions for effective property rights into two scenarios. The first is the traditional assertion of the importance of secure property rights at the individual level. The second is that society requires that property rights are extended to a "broad cross-section of the society" or to "most of the population". Hence, they argue that a society in which a 'small fraction of the population' monopolizes property control is considered not having 'institutions of private property, although the property rights of its political or economic elites are secure (Acemoglu et al. 2003, p. 5). On the other hand, the latest work by Acemoglu and Robinson (2012, p. 79) recognizes that "politics surrounds institutions", due to the simple reason that elites manipulate them to enrich themselves through extractive institutions.

Rather than advocating an extensive institutional reform, however, Acemoglu et al. (2012) call for economic institutions to be made gradually more inclusive, by encouraging the diffusion of property rights such as a level playing field for business, and investment, and an expanded public infrastructure. Such inclusive institutions, in turn, foster economic productivity and technological innovation. A transition to inclusive economic institutions rests on a concurrent shift to inclusive political institutions, which *"broadly distributed power and*

subject the power of the executives under constraints, i.e., check and balance system" (ibid, p. 80). Furthermore, Acemoglu et al. (2012, p. 81) see political and economic institutions as mutually reinforcing, with inclusive political institutions having an inherent "tendency to uproot economic institutions that expropriate the resources of the many". As a result, the shift towards inclusive economic institutions undermines extractive political institutions, making them more inclusive and less extractive.

To explain why some countries have extractive institutions while others have inclusive ones, Acemoglu et al. (2008) introduce the notion of **political equilibrium**, defined as the balance of de facto powers. The term de-facto denotes the ability of groups to enforce their will over others with legal and extra-legal means. The power from formal political institutions is instead defined as "de-jure" (ibid, p.6). When de-facto power is limited to few segments of society, extractive institutions emerge. Although Acemoglu et al. (2008) admit that such institutions do not necessarily prevent growth, however they expand politically connected elites' businesses, and thus growth cannot be sustained, since those controlling the government will block the creative destruction forces to prevent it threatening their interests.

Acemoglu et al. (2012, p.110) point to the "weight of history," which endows countries with unique makeups of elites, interests, and institutions to understand the factors that shape political equilibria. They emphasize the destructive impact of colonialism, which not only weakened countries with ethnically fragmented populations, but it also "set the stage for institutional divergence" by imposing extractive institutions that persisted also after independence and until the present day (ibid, p.114).

Another factor contributing to institutional divergence is represented by critical junctures, such as the emergence of new elites or a revolt by excluded citizens, both of which can alter the power balance and force an institutional renegotiation. The key insight here, informed by Acemoglu et al. (2012), is that these changes amplify over time, triggering virtuous or vicious circles and long processes of "institutional drift" (ibid, p.108). However, the focus of the authors remains on formal institutions, and there is little exploration of the kinds of informal arrangements that might be inclusive enough, even in the short-term, to drive growth (Sen, 2013).

3.2.3 The culturalist approach

The culturalist approach is the most sophisticated version of the interest-based view on institutional change, what Chang and Evan (2000) called the "culture-based structured-interest" view.

The approach agrees with the proposition of the most sophisticated version of the efficiency-driven view that believes that agents internalize the social values embodied in institutions, it is also highlighted that *"oftentimes symbols and rules are instruments manipulated and utilized by economic actors to achieve certain goals"* (Friedland & Alford, 1991, p. 254). For instance, Friedland & Alford (1991) argue that the success of the American capitalists in the early 20th century in convincing the society to accept the imaginary legal status of a juridical person for a corporation was essential in enabling them to institute limited liability, which later enabled the large-scale mobilization of capital through the stock market (p. 257). They also argue that the success of workers in advanced capitalist economies induced the broader society to accept the extension of the notion of citizenship rights and to participate in employment relations in private firms, and even in institute grievance procedures (p. 257).

Thus, the proponents of this view consider institutional changes not simply from the "material" point of view, but also from the “cultural" point of view, because changes in institutions required - or at least are supported by - changes in the "worldview" of the agents involved (Chang & Evans, 2005). Once "cultural manipulation" comes in, the role of human agency becomes a lot more important than in any other version of the theories of institutional change. It is necessary that the human agents actively interpret the world, albeit under the impact of existing institutions, and develop discourses that justify their specific worldview.

In this regard, the "context" is actually a complex set of contexts, particularly in a globalized world. The worldviews of individual agents are nested composites of the immediate culture of organizations and communities, national ideologies, and an increasingly pervasive global culture (ibid). The importance of cultural construction of interests implies that political economy should also have a theory of culture with a broader framework.

Unlike Neoclassical Political Economy, which asserts that self-seeking is the only genuine human motivation (Williamson, 1993), this approach highlights that human motivations are multifaceted, and that there are numerous non-selfish human behaviors, which cannot be explained without acknowledging a range of non-selfish motivations and the complex interaction between selfish and non-selfish motives (Basu, 1983; Ellerman, 1999; Frey, 1997; Simon, 1983). Such criticism also applies to the political analysis of the state and

to other public aspects of governance, not only because individuals often join public governance with commitments to certain non-selfish values, but also because they end up operating in an explicitly public sphere of life up internalizing many publicly oriented values (Chang and Evans, 2000).

In addition to accepting the variety and complexity of human motivations, it is also crucial to acknowledge that institutions basically shape human beings. In neoclassical related theories, including the NIE models, individual motivations (which they usually refer to as preferences) are assumed to be ultimate data or exogenous factors. In such theories, institutions may be able to shape individual behaviors by rewarding or sanctioning particular types of behavior and action, but they cannot change the motivation or the preference itself (Ellerman, 1999; Hodgson, 2000). In contrast, the culturalist approach does not assume these motivations as given, but they are considered to be shaped by the institutions under which individuals operate. By operating under institutions that embody specific moral codes, social norms, and worldviews, individuals unavoidably internalize some of them and change their motivations accordingly. Such a framework is what Chang and Evans (2000) call **institutions' constitutive role** and what Hodgson (2000) calls the **downward reconstitutive causation**, which is a central hallmark of the original institutionalist approach.

Indeed, the emphasis on the constitutive nature of institutions does not mean that an institutional structure is entirely determining people's motivations, which leads to another extreme known as cultural determinism. In the constitutive role of institutions, also individuals influence the way institutions are formed and function, as it is typically done in the NIE models. However, the difference with NIE is the assertion that the institutional analysis should, at least temporarily, start from institutions and that institutions appear prior to individuals in social structures (Hodgson, 2000). And later it considers the two-way causation between social institutions and individual motivation, rather than giving emphasis only to the one-way causation from individuals to social institutions (Chang and Evans, 2000).

By acknowledging the crucial role of culture, ideas, and institutions' constitutive role in shaping individuals and group's preferences, Chang, and Evans (2005), developed a "thick" or broader view of institutions in a more "culturalist" perspective. According to this approach, institutional change depends on a combination of interest-based and cultural/ideological views in which the worldview may shape the interests and vice versa. In brief, changing institutions demands changing the worldviews that inevitably hold institutional structures (Chang, and Evans, 2005). Linking a view that emphasizes the institutions' constitutive role with a

culturalist perspective about their formation creates a broader view in which institutions and economic actors are mutually constitutive (ibid).

3.2.4 The institutionalist political economy approach

Based on his marvelous work with Evans on the culturalist approach, Chang (2002) developed another classic view. This institutionalist political economy (IPE) approach is quite different from the New Institutionalist Economics (NIE). Instead, it is very close with the traditional classic works of authors such as Thorstein Veblen, Joseph Schumpeter, and Herbert Simon (see Chang & Evans, 2000; Evans, 1995; Hodgson, 1988, 1993a, 2000; Lazonick, 1991 for recent developments of this tradition).

This tradition, highly related to the Old Institutional Economics (OIE), differs from the NIE in several crucial respects (Rutherford, 1995; and Hodgson, 2000), but most importantly in seeing institutions not simply as constraints on the predetermined individual behavior as in the NIE, but also as shaping mechanisms of the individuals' behaviors themselves.

According to Chang (2002), in societies where public governance have long been embodying high standards of behavior, government officials may act with more integrity than their counterparts in other societies without such behavioral norms. This is true even if those two different societies are subject to the same systems of individual sanctions and rewards of the kinds that the neoliberals recommend, such as stricter monitoring, higher relative salaries, and tougher punishments. IPE acknowledges the advantage of these institutions that target behaviors directly, but it argues that behavioral standards can also be improved and updated.

For example, behaviors can be improved directly by changing the motivations of public servants. The altered motivations, in turn, can occur through direct ideological persuasion, such as emphasizing public service ethics in bureaucratic training. It can also be done indirectly. through the constitutive role of institutions, for instance by enforcing, within the institutions under which the public servants work, incentive systems that reward teamwork to boost the spirit of cooperation.

Chang (2002) went one step further and argued that some of the neoclassical recommendations intended to improve public servants' behavioral standards might be utterly counter-productive, especially if they create what Ellerman (1999) calls the atrophy of intrinsic motivation by underestimating the non-selfish motivations that had priorly motivated the public servants in question. Hence, in areas where monitoring is easier, diligently documenting

the expenses of public figures for business trips, or strictly monitoring their action may force them to behave in a more moralistic way. However, in areas where monitoring is difficult, this might make them feel untrusted as moral agents. Therefore, only when they are forced, they behave properly; otherwise, they might think that they are under no obligation to behave morally. Accordingly, when institutions emphasize non-selfish values, and therefore actors internalize many of them, there is less chance for individuals' selfish motivations to dominate the behavior in the public governance of the state. Moreover, IPE argues that behaviors may be changed not only by changing institutions that determine the incentives for individuals, but also through ideological changes that affect the individual motivations themselves.

Politically speaking, the neoclassical political economy claims that politics inevitably generates state actions that go against market rationality. Hence, markets should be and can be free from politics. In contrast, IPE argue that markets themselves are fundamentally political constructs, mainly due to the underlying politically shaped rights-obligations structure. Therefore, even if desirable, it is not possible to completely get rid of markets or politics. Neoclassicals also argue that there should be a clear demarcation between the market and the state and that political influences should not be allowed. Politicians are rational self-seeking individuals, claiming objectivity for their view. However, once the political nature of the market is accepted, there is no "objective" way to decide the "right" boundary between the market and the state, since one's political view will greatly influence whether one sees a particular boundary as a legitimate or rational.

Therefore, IPE assumes politics not as something external to or distracting the market, but as an integral part of its construction, functioning, and transformation. While acknowledging the disadvantages of an excessive politicization, IPE stresses that there is no single best political view and, therefore, no defined boundary between the market and the state as well.

Chang (2002) goes even further and criticizes the neoclassical analysis of politics for its failure to recognize the extent to which politics itself is an institutionally structured process (Chang and Evans, 2000; March and Olsen, 1991). In their analysis of politics, neoclassical economists have tried to analyze the influence on policy actions of the formal and informal institutions that govern the way in which interests are organized and the power is exercised among them, electoral rules, rules regulating the behavior of public figures, or the voting in parliamentary committees. However, they have seen institutions only as constraining factors on human behavior, without considering that they are also constitutive, that is, that they can

influence politics not only by constraining the human actions, but also by shaping individual motivations and worldviews or ideologies (Chang and Evans, 2000).

3.3 The impact of structural change on institutions

Institutions and the society's mode of production undoubtedly evolved together; institutions cannot be usefully studied separately from the economic and technological system that required and built them. Moreover, there has been an emphasis on treating institutions only in isolation as exogenous instruments promoting economic development, to the detriment of a clearer understanding of the economic and institutional development. As argued by the Old institutional economist, Veblen (1961), daily life acts to change or reinforce the acquired habits of thought, and to change or fortify the acquired institutions under which men live. This implies the likelihood of having institutions in the economic production process that are intentionally created to provoke change, as integral parts of the dynamics of evolving production systems.

Such an institutional approach acquired a dynamic and Schumpeterian character, emphasizing innovations and structural change, while looking at institutions as they altered the dynamics of changing modes of production (Reinert, 2006). For instance, patent rights were granted to make it profitable to create new knowledge, and dynamic tariffs were enforced to resettle newly created knowledge and technologies in new nations. When they introduced those institutions, people had an economic development model in their minds. In this sense, the creation and diffusion of new knowledge were at the core of an economic strategy ensuring economic development. For this purpose, institutions, i.e., patent rights and tariffs, are typically Schumpeterian institutions proactively created to promote economic change.

Other institutions appear through a more reactive process, as solutions to the 'reverse salient' that blocks the desired development of the system (Hughes, 1987). For instance, the insurance systems emerged in response to risky long-distance trade. Similarly, modern democracies were demanded by urban craftsmen and working classes, rather than by landlords in the feudal system. Hence, it is not very clear if the underdeveloped countries are poor and stuck in subsistence agriculture due to their lack of property rights or if they lack property rights because they are stuck in subsistence agriculture (Reinert, 2006a).

In this regard, an institution advantageous for one production system may not benefit another; for instance, in pastoral societies the sequential usufruct of land is much more suitable

to that specific mode of production than protection of property rights in capitalist societies (ibid). According to Reinert (2006b), these two forms are clearly and closely related, but differ qualitatively in being reactive and proactive.

Partly, the history of institutions can be explained by the history of Schumpeterian institutions that facilitated the growth and expansion of the industrial system across developed countries. The Schumpeterian analysis of economic institutions combines both the dynamics of causality and the deliberate design. In such analysis, institutions tend to be created with a clear purpose in mind as part of an intentional strategy to accomplish defined dynamic economic and political goals. Based on the societies' organizational capability, such institutions are change-inducing and change-enabling institutions. The capacity to create and change them according to new conditions ensures structural change, which is the main driver of economic development (Reinert and Reinert, 2005). In this framework, economic development is activity-specific, i.e. closely related to the diversified economic structures that both individually and nationally are subject to dynamic increasing returns. As a result, institutions become context-specific; the same institutions suitable in one context may become completely unsuitable in another (Chang, 2011). In a dynamic economic system, i.e., technology, institutional unlearning becomes as essential as institutional learning and institutions such as property rights cannot always be considered 'advantageous by themselves' (Perez, 2004; Reinert, 2000).

Again, context is crucial due to 'too much and 'too little' property rights and institutional perversion and persistence. In this regard, institutions are only fully intelligible as they relate to a future goal to be accomplished. In this evolutionary framework, the economy does not aim to reach any equilibrium but rather to move towards some future optimum that may never be achieved due to the continuous evolution of new knowledge and technology (Reinert, 2006b).

In the activity and production-specific tradition, that goal is economic progress or economic development. For instance, in the eighteenth and nineteenth centuries, improvement was commonly seen as moving through qualitatively different stages, i.e., from hunting and gathering society to a pastoral society, agriculture to handicraft-based society, and gradually to industrial society (Reinert, 2000). Accordingly, it was clear that industrial society would create a higher standard of living than other prior development stages (Reinert, 2006b). In such progress, institutions were tools by which transitions were crafted from one stage to another, and their own dynamics had to be understood in the context of the productive structure (ibid). Thus, there were elements of coevolution that society's mode of production would create the

demand for new institutions but also shape, mold, and determine them. Industry molds people because industrialization shapes the peoples' attitude and change institutions which, in turn, would have been undesirable and impossible without industrialization (Kautz, 1994). For instance, feudal societies neither needed the institutions of industrial societies nor could they acquire them, due to their different interests and limited capacities.

Hence, human attitudes and institutions are more a product of their mode of production. As Veblen (1899) puts it: institutions are of the nature of prevalent habits of thought. Therefore, the force that shapes institutions is the force that shapes the habits of thought prevalent in the community. At the same time, habits of thought are the outcome of the habits of life, and the subsequent discipline of daily life acts to alter or reinforce the received habits of thought and thus the acquired institutions under which people live. In general, the directions to which the alteration proceeds are subjected to the trend of the discipline of daily life (Veblen, 1961).

Karl Marx (quoted in Reinert, 2006) also claims that technical change brought on by manufacturing is the driving force of change that rescued people from the isolation of rural life. According to him, through the rapid advancement of all modes of production and the immensely facilitated means of communication, the bourgeoisie transformed the most barbarian nations into civilized and industrialized countries. Economic history shows that only societies that have achieved a certain level of manufacturing and other increasing return activities have ever reached the 'right' institutions or any degree of 'competitiveness.'

Historically, an economic activity demand for a specific institution in question would appear before the institution itself. More specifically, manufacturing industries are necessary for creating the most desirable institutions, including political freedom and democratization.

Thus, after the Second World War, the Marshall Plan to reindustrialize Europe through 'technology of institution building' to create wealth targeted the type of activities able to bring desirable and suitable institutions. An institutional system is mainly molded around the needs determined by the modes of production. Contrarily, neoclassical economics has lost this connection between production and institutions, i.e. the activity-specific element of institutional development. In this regard, having focused just on exchange and trade and having neglected production, the policy proposals of the neoclassical theories have been disadvantageous to many developing countries. Hence, it is challenging to explain the government and institutional failures in concrete terms independently of the kind of economic activities these states engage in.

Historically, institution-building has been closely related to learning and change strategies, and to the evolution of the economic fabric of a society, a way of thinking not easily captured within a neo-classical laissez-faire framework. Therefore, institutional change must be seen in a dynamic context of technological change where different economic activities are synergically operating in a system, playing different roles, demanding, and creating very different institutional frameworks.

3.4 The impact of Institutions on Structural Change

In his analysis of the causality from institutions to economic systems, North (1990) categorizes institutions as informal rules (culture, norms, and customs) on the one hand and as formal rules (economic regulation and incentives, judicial, bureaucratic, and administrative systems, and political regimes) on the other hand. North further elaborates institutions as political rules and economic rules; such rules range from constitutions and common laws to specific laws such as individual contracts that define constraints, and from general rules to specific laws in societies (North 1990). Therefore, at least the two principal aspects of institutions are political rules interpreted as political institutions that shape economic rules on one hand and economic rules that are portrayed as economic institutions on the other hand.

Economic institutions shape the property rights structures and contracts between individuals and firms that influence the structure of economic incentives, drives the individuals' decisions on how resources are allocated and determine who gets the profits, revenues, and the control rights. Political institutions, on the other hand, shape the incentives of the political executive and determine the balance of power in society both within the branches of government (legislative, executive, and judicial) and among the state and citizens, including the ability to shape economic institutions and the distribution of resources. Thus, the economic institutions commonly constructed by those holding the political power dictate the economic interactions mainly by defining the property rights structure and the contract enforcement mechanisms. This is primarily because institutions determine the incentives or the constraints of economic actors and shape the economic outcomes (Acemoglu & Robinson, 2008a).

In this regard, both formal and informal institutions- the rules of the game- are crucial, because every economic or political exchange between individuals and firms involves transaction cost, the cost of defining what is being exchanged and then of enforcing the agreement. The institutional structure determines these costs and hence facilitates the transactions among economic actors. Similarly, institutions shape the incentives of individuals and firms to work, save, invest, or undertake certain economic activities. Consequently, they dictate the feasibility and profitability of engaging in economic activities. In other words, institutions make up the institutional matrix that constrains the choices available to individuals, reduces uncertainty in exchanges, and determines production and transaction costs (North, 1989; North, 1990).

North argues that the rates of returns and profit of economic activities are shaped by the quality of existing legal, economic, and political institutions and the incentive structures they create for individuals and firms. When institutions ensure secure property rights, efficient contract enforcement, a fair judiciary system, and effective constitutional limits on the government's power to transfer wealth through taxation and regulation, they reduce the profitability of unproductive political and economic activities. Under this incentive structure, creative individuals are more likely to engage in productive activities that create wealth (i.e., product innovation), facilitate factor accumulation and efficient allocation of resources, and consequently promote growth and prosperity prevails (Baumol, 1990; North, 1989). Instead, in areas with weak institutions, these same individuals are more likely to engage in manipulation of the political or legal process to capture transfers of existing wealth through unproductive legal and political activities that destroy wealth (i.e., lawsuits and lobbying) and, hence, poverty and underdevelopment are the ultimate results. In other words, institutions define the payoffs and potential wealth maximizing the opportunities of agents, either economic or political, and such opportunities may eventually cause major alterations in the economic performance of firms and countries (North, 1989). If the payoffs from illegal and unproductive activities are greater, the economy would be shaped to maximize at those margins. On the other hand, if the payoffs arise from productivity-enhancing activities, then growth and prosperity prevail (Baumol, 1990; North, 1989). For instance, the US economic history is a story of successful economic growth due to the fundamental institutional framework which reinforced incentives for entrepreneurs and organizations to acquire knowledge, coordination skills and to engage in learning by doing activities to enhance the potential productivity and profitability of the economy (North, 1990).

Based on such clear causality from institutions to economic systems, several studies consider institutions accountable for the economic divergence between developed and underdeveloped nations (Bruinshoofd, 2016; Rodrik, 2004b; Rodrik et al., 2004). However, the overly complex nature of institutions forced economists to follow a pluralistic approach towards institutional analysis, which however emerged only quite recently, mainly after the widespread recognition of institutions as determinants of economic growth.

For long, institutional economics has been confined within the history of economic thought (Matthews, 1986), which implies the evolutionary nature of institutions. Recently, based on the notions of institutional evolution and New Institutional Economics, Williamson (2000) articulated four levels of institutional analysis, which show the evolutions of institutions towards broader and more formalized entities (see Table 1). The first is social embeddedness, where informal institutions (norms, customs, religions, and traditions) are spontaneous, and hence non-calculative. The second level is the institutional environment where formal institutions (property rights, constitutions, and laws) are located. Also the bureaucratic functions and the government's executive, legislative and judicial branches are included in this level. The evolution of these institutions has led to what Williamson called *"first-order economizing"*, which refers to the process of getting the formal rules of the game right.

Table 3.1 - Williamson taxonomy of levels of institutions

Level 1- Non-calculative	Embeddedness: informal institutions- customs, norms, traditions, etc.
Level 2- get the institutional environment right (First-order economizing)	Institutional Environment: formal rules of the game i.e., constitutions, laws, property rights and, branches of government (executive, legislative, judicial)
Level 3- get the governance structure right (Second-order economizing)	Governance: the play of the game i.e., contract aligning governance structure with transactions
Level 4- get the marginal condition right (Third-order economizing)	Resource allocation and employment (price and quantities: incentive alignment)

Source: Williamson (2000)

The reality of contractual incompleteness and the unrealistic nature of a perfectly functioning legal system and costless courts, which causes opportunistic behaviors among

individuals and societies, has led to the evolution of the third level of analysis, which is the governance of contractual relations: getting the governance structure right. At this level, the governance ensures peace and order, mitigates conflicts, realizes mutual benefits, and hence reshapes incentives. The fourth level is getting marginal conditions right. It focuses on adjustments to price and output, and hence on the reallocation of resources and employment.

The type of institutions in each level creates systems that reduce uncertainty in exchanges and increase order and, together with the technology employed, they determine the production and transaction costs.

Structural change as a determinant of economic growth requires short and long-term investments in specific human and physical assets, private and public knowledge, technology and innovations, and industrial developments, which, in turn, requires various institutions to facilitate those investments. In this regard, Acemoglu et al. (2001, 2002) examined the impact of European colonization policies on the institutional divergence among former colonies. European colonizers decided to settle in their colonies with lower mortality rates and population density, i.e., US, Canada, Australia, and New Zealand. Here they replicated "inclusive institutions" granting protection property rights for the broader section of the society and ensure check and balance against government power for their own sake, as settlers in those areas, and therefore directly benefiting from such system (Crosby, 1986).

In contrast, in their colonies with higher mortality rates, population density, and urbanization levels, where it was inconvenient to settle, the European colonizers set up or took over existing "extractive institutions." They strategically used such institutions that lacked property rights protection and check and balance against government expropriation to extract resources from these colonies to be transferred to their own markets and place of origin (Young, 1994). In colonies where they established inclusive institutions, the strategy of European colonialism eventually led to "institutional reversal", i.e. the advancement of private property rights that promoted investment opportunities and provided incentives for a broader cross-section of the society and hence triggered a successful economic performance (Acemoglu et al., 2002). On the contrary, in colonies where the Europeans introduced extractive institutions or maintained the existing extractive ones with highly centralized political power in the hands of the small elite, they created a high expropriation risk for the majority of the population and consequently discouraged investment and economic development in territories such as the Caribbean, Central America, South Asia and Africa (Daron Acemoglu et al., 2001; Bairoch, 1988). As a result, nations that were relatively prosperous and densely settled in 1500 ended

up with worse institutions after the European occupation, and still today they are relatively poor (Acemoglu et al., 2002; Acemoglu & Robinson, 2008a).

Therefore, the institutional divergence that started in the colonization era has eventually led to the **"income reversal"** phenomena, in which the relatively rich countries became poor and the poor ones became rich during the industrialization era in the nineteenth century (Acemoglu et al., 2002, 2005b). During industrialization, colonies with institutions characterized by secure property rights and less distortionary policies could invest more in human and physical capital (Acemoglu & Robinson, 2002; Maddison, 1995). In turn, they were able to utilize the opportunities of industrial technologies thanks the impact on wide parts of the society, including smallholders, middle-class citizens, and entrepreneurs (ibid).

Consequently, these societies with better institutions took much better advantage of the opportunity to industrialize and hence experienced economic growth (Bairoch, 1988). Thus, both the reversal of institutions and the reversal of income across former European colonies witnessed the stronger interaction between institutions and the opportunity to industrialize and ensure economic development (Acemoglu et al., 2002). In relatively prosperous colonies with extractive institutions, although the property rights of the small group of elites are relatively well protected, the broad section of the society has no effective property rights. Hence, at the arrival of new technologies, those with the entrepreneurial skills and ideas may not be members of the elite and may not undertake the necessary investment due to a lack of secure property rights (Acemoglu, 1995; Acemoglu & Robinson, 2002; Acemoglu & Verdier, 1998). Furthermore, the elite often blocks investment in new technologies and industrial activities if it does not benefit from them or if it is afraid of political turbulence and to possible threats to its political power (Acemoglu et al., 2001; Acemoglu & Robinson, 2000).

Contrarily, an early industrialization appears to require the necessity to have investments undertaken by many people who were not previously part of the ruling elite. Where societies with good institutions, i.e., the US, were prevalent, new entrepreneurs took advantage and ensured income reversal (Rothenberg, 1992), while societies with extractive institutions, i.e. Africa, failed to do so (Bairoch, 1988). This shows that institutions granting a more secured private property matter much more when new technologies require the participation of broader sections of the society, while extractive institutions may become inappropriate with the arrival of new technologies and of opportunities to industrialize and ensure economic convergence (Acemoglu et al., 2001, 2002).

Nevertheless, it is not only during the industrialization era that institutional differences cause income reversals, but also today the differences in income per capita are mainly due to the persistence of institutions even after the independence of former colonies (Coatsworth & Taylor, 1999). The colonialist's extractive institutions persisted even after the end of colonial regime, and although the independent policy makers are commonly described as "new states", in practice they are the successors of the colonial system (Young, 1995).

Most of the time, when colonizers set up authoritarian institutions, they delegated the day-to-day activities of the state to few domestic elites (Acemoglu et al., 2001). This small elites with a large share of anticipated revenues and incentives were the ones controlling the state after the independence and they all continued to favor extractive institutions (Acemoglu et al., 2002).

Similarly, the institutions based on the protection of private property and check and the balance against government power established during the early phases of colonization in the US, Australia, Canada, and New Zealand have been the basis of the current institutions in these countries (Coatsworth & Taylor, 1999). Societies make irreversible investments consistent with a particular set of institutions, and, for this reason, they tend to support them, and to favor their persistence (Acemoglu, 1995). For instance, only societies that have invested in human and physical capital favor the investment in property right enforcement. This is mainly due to the cost of creating new institutions: since the colonial powers had already to bear the cost of creating either inclusive or extractive institutions in their former colonies, switching to new systems might be considered too costly to the newly independent states (Acemoglu et al., 2001, 2002). This is even more so for institutions that place restrictions on the government power and that enforce property rights, due to possible strong oppositions from the small but powerful elites in societies with extractive institutions (Acemoglu, 1995; Acemoglu & Robinson, 2002; Acemoglu & Verdier, 1998).

In the long run, in addition to income divergence, this persistence of institutions also caused a high concentration of political power in the hands of a few and inefficient economic institutions, in charge with the task to promote the economic convergence (Acemoglu et al., 2001; Acemoglu & Robinson, 2008b). Reforming them is difficult because they are determined by the distribution of the political power within the society, which, in turn, is determined by the distribution of the resources (Acemoglu et al., 2005b). A more spread distribution of resources within the society corresponds to a wider distribution of political power and to more efficient economic institutions (Acemoglu & Robinson, 2008a). This institutional trap has led

to a poverty trap in many developing counties, especially in Latin America and in Sub-Saharan Africa, which are poorer than the rest of the world not because of pure cultural or geographic factors, but because of worse institutions (Acemoglu et al., 2002).

3.5 Institutional perversion and persistence

Institutions can change over time: institutions that were beneficial in the past can become roadblocks for structural change and development (Reinert, 2006). This is commonly known as **institutional perversions** and usually happens due to institutional inertia or persistence. In this sense, if they insist on supporting an old order, institutions may actually hinder economic change.

Veblen (1899) argues that changes in technology and population guide the institutional change and that current habits of thought and institutions inherited from the past are never ideal for meeting the requirements of the present. Further, Ayres (1944, p. 187) identifies exogenous technological progress as a primary driver of institutional change by claiming that *"technological advancement forces change upon the institutional structure by changing the material and circumstantial setting in which it functions".* According to him, institutions are resistant to change, implying a path-dependency nature of institutions. That might block technological changes. For this reason, feudalist institutions resisted industrialization and were demolished before they could expand. Basically, new technologies require new institutions and simultaneously require and favor the development of a new type of common organizational understanding (Perez, 2004).

Similarly, new technologies spread faster and better in new environments, where there are no outdated institutions to hinder them (Veblen, 1989). Such a framework explains why periods of radical technological change are also periods when new nations that do not have institutions that preserve the old order can leapfrog into the global frontier (Reinert, 2006). Naturally, the institutional persistence blocking further development especially happens during periods with radical technological change, leading to a transition between techno-economic paradigms.

Friedrich Nietzsche (2000) describes institutional inertia as a process in which ideas or new knowledge come first and are only gradually able to change institutions. According to him, the overthrow of institutions does not immediately follow the overthrow of new ideas; instead,

the new ideas stay for a long time in the isolated and unfamiliar house of their antecedents, and even preserve it themselves (Nietzsche, 2000).

Technological dynamics require institutional dynamics. In this sense, institutions must be considered context and production-specific tools in an economic setting where structural change and economic development are activity-specific, and where the factor bias and the demand change over time (Chang & Andreoni, 2019). In an economic system, this means that some economic periods require one factor of production more than other periods (ibid). Accordingly, the institutional requirements of a certain economy vary from one era to another and the industrialization stage requires different institutions from the service stage (Reinert, 2006).

It is also possible that productive and legitimate institutions become unproductive and illegitimate depending on the context and activities of a particular country. Institutional overdoses and underdoses are entirely possible, and they may bring a perversion of institutions as compared to their original intent. Depending on the context and production activities, institutions may also serve dual, multiple, and systemic purposes (Chang & Andreoni, 2019). For instance, in this regard, for a long time, customs duties played the dual role of creating fiscal income and of supporting industrialization (Reinert, 2006).

Currently, institutional approaches to economic development study dominate the mainstream of development economics, without denying the importance of traditional determinants of growth, such as investment, physical and human capital, and technological progress. Rather, the institutional analysis is considered fundamental to understanding the effects also of these traditional variables themselves: variations in an institutional context are theorized as underlying variations in these traditional determinants of growth.

Similarly, the extent to which these factors result in a sustained increase in output is considered to be dependent on the institutional context (Peter & Evans, 2005). Nevertheless, the causality in the other direction, from economic development to institutions is usually ignored. Chang (2011) identified three channels through which economic development changes institutions. First, richer countries due to economic development, demand more for quality institutions (i.e., for property rights protection and for check and balance of government power). Second, richer nations, can afford better institutions. High quality institutions are more expensive because they are costly to establish, run, and change. Third, the higher the level of economic development, the higher the number of new agents of change, demanding for new institutions. For instance, in the 18th century, the advancing industrial capitalists promoted the

expansion of banks against the resistance to it by feudalist landlords. Similarly, in the late 19th and early 20th centuries, the increasing dominance of the working class led to the emergence of the welfare state and of labor unions against the interest of capitalists who opposed those institutions. Even if there is a diffused idea of causality going from institutions to economic development, contemporary developed countries acquired most of the institutions that many consider as prerequisites of economic development after, not before, their economic development.

Most developed countries acquired most of the main GSI, such as– modern bureaucracy, democracy, Intellectual Property Rights (IPRs hereafter) (Chang, 2002a), not in their initial stages of development, but only after they became developed (Chang, 2005). The financial and human resources that developing countries are spending to acquire the GSIs may be useful if they are invested in other policies that can directly stimulate economic development, such as investments in education infrastructures or industrial subsidies. Given the causality from development to institutions, indirectly such measures will also promote the institutional development and quality, which can then further promote economic development due to the causality from institutions to development.

Another factor complicating the picture regarding causality is what may be called the 'late-comer effect' or 'late-comer advantage' (Chang, 2002a). The late-comer effect allows developing countries to import better technologies without having to pay the full cost of inventing them. In the same way, late-comer countries can import superior institutions and consequently they tend to have more advanced institutions than what their standards of intellectual and material development would strictly demand. Taking this into account, only considering the causality from institutions to economic development, provides a partial picture of the reality. The causality in the other direction, from economic development to institutions, is also essential to fully understand how institutions and economic development interact and produce the right policy advice accordingly.

The mainstream-based literature uncritically assumes that a stronger protection of property rights is always advantageous, but this cannot be true for all countries, all levels of development at all times (Chang, 2006). For example, there is a probability that too strong a protection of property rights can be as bad as a very weak one, as it can protect obsolete technologies and outmoded organizational structures. Contrary to what is assumed in neoclassical-based theories, the linear relationship between the strength of property-rights protection and economic development is unlikely (Chang, 2001; Chang, 2011). There may

instead be an inverse-U-shaped relationship, where neither a too weak protection nor a too strong one is good. In another case, once the property protection surpasses a minimum threshold, its strength may not matter that much.

While some protection of property rights is required in order to facilitate investment and growth, an excessively strong protection of property rights may actually end reducing them. In this line, the recent debate on IPRs has shown that some protection of IPRs may be important to induce firms to invest in knowledge creation, at least in certain industries such as software, chemicals, and pharmaceuticals (Chang, 2001; Stiglitz, 2007). However, too much IPR protection may block and can thus be bad for the society (ibid), since it may increase the cost of technological diffusion, block the cross-fertilization of ideas, and increase the chance of technological deadlock due to conflicts between holders of inter-related patents (Chang, 2007).

Moreover, even the same institution used with the same intensity that is good for one country may be bad for another. For instance, a level of protection of IPRs that may bring a net benefit to a developed country may be harmful to a developing one.

3.6 Institutional convergence

Considering institutions as "technologies for social management," there is a strong incentive for using the Gerschenkronian catching-up framework to understand the institutional growth in developing countries (Chang, 2006). In this sense, the late-developing countries can import "better" institutions from the developed countries and thus use them without paying for them the same "prices" that the developed countries paid to develop them. For example, for contemporary developed countries it took a century of financial crises and a lot of economic and human costs to develop the institution of the central bank. On the contrary, today's developing countries have been better able to cope with financial crises in comparison to today's developed countries when they were at comparable levels of economic development, because they have introduced the central bank at relatively lower levels of economic development.

Indeed, due to institutional limitations the developing countries now are holding higher standards of political democracy, human rights, and social development than what was realized by today's developed countries when they were at similar levels of economic development (Chang, 2002a).

Nevertheless, institutional imitation is not enough, exactly as technological imitation is not enough, to ensure successful institutional development. More particularly, there are many tacit elements both in institutions and in technology. For example, in developed countries some formal institutions may seem to be working well only because they are backed by a certain set of invisible informal institutions (Chang, 2006). In countries where people do not have the habit of asking for and issuing receipts, it will be difficult to introduce Value Added Tax (VAT). Or, again, in countries where people do not have an "industrial" sense of punctuality introducing the JIT (just-in-time) production system will be impracticable (ibid). In this regard, the imported formal institution will not deliver similar outcomes as they do in their place of origin because the importing country may lack the necessary backing informal institutions.

Hence, in the same way in which imported technology needs to be adapted to the local circumstances, some degree of adaptation is needed to make imported institutions work. Therefore, not only imitation and adaptation are needed to make institutions work but also institutional innovation (Chang, 2006), which can be a determinant of a successful economic performance. However, this does not mean that culture and institutions can be changed at will.

New institutions are not going to work unless they enforce some extent of political legitimacy among the members of the society (Jacoby, 2001). To attain legitimacy, the new institution has to have some resonance and synergy with the existing culture and institutions, which define the possible scope of institutional innovation. Remolding non-GSIs into GSIs or importing GSIs into countries with missing formal and informal institutions will not work (Chang 2006). Furthermore, there are costs involved in installing and managing new institutions.

According to Chang (2006), these laws will not automatically implement and execute themselves. They need bureaus, such as a patent office that can evaluate and filter patent applications, lawyers who can deal with patent disputes, concerned courts to settle the disputes, investigators that can identify and catch copyright violators. All these functions require massive human and capital resources. The redeployment of such resources from the existing uses to run the new institutions can negatively affect the social welfare, if those resources were devoted to more important things. Hence, a prior cost-benefit analysis should be made before importing new institutions, even if they bring benefits and the costs needed for their establishment and future running should be clearly calculated before importing them. Unfortunately, many economists neglect the opportunity costs of institutional reform when implementing the GSI or establishing one-size-fits-all types of institutions.

The issue of institutional divergence and consequent adverse effects justify how diversified social systems are very different in their institutional arrangements. Rodrik (2005) proposes three reasons for institutional non-convergence. First, differences in social preferences, such as the trade-off between opportunity and equity, may produce different institutional choices. Second, complementarities between different parts of the institutional landscape can generate persistence and path dependence. Third, the institutional arrangements required to promote economic development can differ significantly, both between developed and developing countries and among developing countries themselves. In this regard, there is increasing consideration in the economics literature that high-quality institutions can take various forms and that economic convergence does not necessarily require convergence in institutional forms. North (1994, p. 8) claims that due their different domestic informal norms and enforcement mechanisms, countries that copy and paste the formal rules of a foreign country will have very different outcomes of economic performance. For this reason, transferring or transplanting the formal economic and political rules of prosperous Western economies to the third world and Eastern European economies is neither sufficient nor effective for achieving a good economic performance.

Pistor (2000) explains how the importation of laws can have adverse outcomes. According to Berkowitz, Pistor, and Richard (2003), countries that developed context-based formal legal orders, adapted imported codes in terms of local conditions or had prior experience with foreign regulations ended up with much better legal institutions than countries that simply transplanted formal legal orders from foreign countries (Berkowitz et al., 2003). Dixit (2004, p. 4) sums up the lesson for developing countries and proposes that *"it is not always required to build replications of western-style state and institutions from scratch; instead, it may be feasible to work with such alternative domestic institutions that are available and build on them."*

The analysis of the costs and benefits of institutional "experimentation" versus "copycatting", helps to understand whether institutions that have proved successful elsewhere may also be applicable in a particular country (Mukand and Rodrik, 2005). The results of recent studies, in this line of reasoning, show that institutional arrangements that produce successful outcomes in a specific country may create positive and negative spillovers for other countries. Positively, countries whose underlying conditions are adequately similar to those of successful leaders can imitate the arrangements working there and avoid experimentation costs. Negatively, governments may be moved or forced to imitate institutional arrangements for

political or economic reasons, even when their underlying conditions are too different for this strategy to make sense. Inefficient imitation might arise because the political leaders may plainly choose to imitate standard policies that increase their probability of remaining in power even when they know these will not work and have alternative arrangements (Mukand and Rodrik, 2005).

Even though it is recent, this literature opens a new and exciting way of looking at institutional change. More specifically, it is an approach less focused on so-called best practices or on the superiority of any specific neoclassical model and more mindful of the context-specificity of desirable institutional arrangements.

Chapter four

STRUCTURAL CHANGE IN AFRICA: TRENDS, FEATURES AND PECULARITIES

4.1 Industrial policies, structural change and economic growth in Africa

Since the 1960s, African countries have followed state-led and protectionist approaches to promote structural change, mainly industrialization, through import substitution industrialization (ISI) strategies pursued by the continents' post-independence political leaders (Fantu, 2014; Geda, 2018; Mkandawire, 2001). Such strategies, which dominated the industrial policy of African countries in the 1960s and 1970s, include import tariffs and quotas, exchange rate controls, and subsidies and protections for targeted domestic industries.

Initially, these strategies led to growth in manufacturing production and triggered overall economic growth in many African nations (Ajakaiye & Page, 2012; Aryeetey & Moyo, 2012; Signé & Johnson, 2018), followed by an average annual GDP per capita growth rate of 2% (Busse et al., 2019). This early period of economic development is known as the golden age of Africa that took place in many African countries in the 1960s and 1970s (Ellis, 2002). As a result, the GDP share of manufacturing value-added increased notably from 9.2 to 14.7 %, coupled with an increase in the relative employment share of manufacturing from 4.7 % in 1960 to 7.8 % in 1975 (De Vries et al., 2015).

This development pattern reflects Lewis's dualistic model, according to which labor moves out of the traditional agricultural sector and is absorbed in the modern industrial sector (Lewis, 1954). In addition to this model, there are different perspectives on the success of this industrialization stage in Africa.

Structuralists point out the dynamics in productivity, economies of scale, technological upgrades, and the primacy of manufacturing as drivers of technological change across economies. Accordingly, they emphasize the importance of buildup production capabilities, increased investment, and innovation activities in this particular time of economic success (Fransman, 1982).

In contrast, neoliberalists stress the higher costs related to heavy government intervention through import-substitution industrial strategies. According to them, this caused distortions of prices in favor of industry, which later created an incompetent manufacturing sector in the international market. The productivity levels at national prices have been much higher than the levels at international prices (Lensink, 1996). Between 1960–1975, static gains arising for reallocations were substantial, while dynamic losses were small because workers were relocated from agriculture to manufacturing. In other words, manufacturing productivity levels were much higher than other sectors, accompanied by a small negative dynamic loss and a positive static reallocation gain (De Vries et al., 2015).

This period witnessed growth-enhancing structural change and substantial labor productivity growth in manufacturing. In the mid-1970s and 1980s, early African industrializers combined import substitution policies with export-substitution ones, which collectively had a 'comparative advantage defying' effect (Lin, 2011). This has been mainly due to the protection of uncompetitive manufacturing firms at the expense of other firms with comparative advantage in the global market (Bigsten & Söderbom, 2011; Lin, 2011, 2019). In addition, import substitution strategies were not accompanied by export diversification policies, and thus countries were supporting industries that were not internationally competitive (Aryeetey & Moyo, 2012). The subsequent industries created were not sustainable and competitive due to domestic market constraints, such as incredibly low literacy rates, fragile institutions, and strong external restrictions, i.e., declining terms of trade and shortage of foreign exchange (Mendes et al., 2014).

In the late 1980s, the continent was trapped in economic and political disruptions, both at the national and international level, currency and price instability, oil crises, and related coincidences resulting in economic stagnation for a long period of time (De Vries et al., 2015). Moreover, the poor articulation between consumption and production structure, represented by a weak linkage between agriculture and the industrial sector (Geda et al., 2018), contributed to the failure of Africa's export diversified and sophisticated products (Ajakaiye & Page, 2012). There was also a failure to articulate a long-term plan considering future demands for intermediate inputs, human capital, and export diversification required to sustain growth (Geda, 2018).

As a result, in the late 1970s and early 1980s, the manufacturing capacity and the level of industrialization in the continent began to shrink (Aryeetey & Moyo, 2012; Geda, 2018),

followed by rapidly deteriorated economic growth that lasted for 20 years until the mid-1990s, the period in which the average growth of African per capita was negative (Busse et al., 2019).

This period between 1970–1995 is also known as the "lost generation" of Africa, afflicted with inappropriate policies, a sub-standard business climate, and long-term political instabilities (Cadot et al., 2016). The employment share of agriculture persistently decreases due to the direct movement of labor to the services sector, skipping the manufacturing sector (De Vries et al., 2015). From 1975 to 1990, both economic growth and structural change stagnated with slow productivity growth across all sectors (De Vries et al., 2015). In most countries, workers continued to move to relatively higher productivity sectors resulting in small static reallocation gains and negative dynamic loss. Moreover, the reallocated workers were not particularly productive in the new activities. In many cases, manufacturing has been dragged by the primary sector, which employs most of the countries' labor force, since it uses its export revenues to support uncompetitive industries (Aryeetey & Moyo, 2012).

At this time, industrial policies were driven by the need to tackle various economic challenges. According to Berthélemy (2018), African governments attempted to formulate policies that promote growth through building infrastructures, accumulating physical capital, and promoting investments. However, these policies have been financed by short terms commodity and resource booms and excessive foreign aid and debt. These policies facilitated a rapid but short-term investment-led growth, involving extra-large investment agendas, and hence created absorption capacity constraints.

As a result, large firms in developed industries turned into white elephants soon after their establishment, while the economy of most countries stagnated and faced frequent financial crises (Lin, 2009; 2011; 2019). The failure of the early attempts to industrialize was somewhat due to poor implementation of policies that were not suitable, given the continent's internal context and production capabilities. For instance, Lall and Wangwe (1998) claim that industries in Africa failed to ensure export diversification, technical efficiency, and technological externalities and spillover. By the mid-1980s, frequent external shocks, including commodity and resource price decreases, real interest rate increases, and the limitations of domestic markets, led to the various political, socio-economic, and financial crises in the continent (Aryeetey & Moyo, 2012; Samouel & Aram, 2016; Signé & Johnson, 2018). As a result, the average growth rate was very low or even negative in most African nations, initiating an extensive economic restructuring and liberalization mainly through structural adjustment programs (SAP) (Lensink 1996; Collier & Gunning, 1999).

After state-led ISI failed, African countries diverted to the SAP, endorsed by the international financial institutions such as IMF and World Bank in 1980 and 1990s (see section 2.5.2). As a result, several African governments adopted the view that governments should play a minimal role in the industrialization process. Initially, reforms like trade openness, privatization of state-owned enterprises, and foreign aid have renewed the promotion of the African manufacturing sector in the 1990s (Signé & Johnson, 2018). However, the competition from foreign firms and products has increased, accompanied by new pressures on African currencies, such as devaluations, which were challenges for success.

Moreover, with the implementation of liberalization policies that did not protect industries without the capacity to catch up with the technological frontier, many of the previously created industries were incapable of competing and hence swept off in the economic crises period of the 1980s and 1990s (Lin, 2011; 2019; Aryeetey & Moyo, 2012). Following trade liberalizations in Africa, intensified foreign competition forced domestic manufacturing firms to exit, and the remaining ones reduced their employees (Kelbore, 2015; MacMillan & Rodrik, 2011).

The liberalization of countries with low technological capabilities increases competition from both the outside world, while the incoming new firms mainly require skilled labor, which, in turn, decreases the demand for unskilled labor falls, leading to a decline in real wages (Bourguignon & Verdier, 2005; Kelbore, 2015). In other words, opening countries' markets to foreign firms tend to increase domestic firms' competitive pressures and reduce their market power, eventually forcing them out of the market (Kelbore, 2015). Therefore, the incapability to compete and the consequent distortions in the labor market, coupled with inefficient labor mobility across sectors, may hinder the desired reallocation of resources from the non-tradable sectors to the tradable ones (Davis & Mishra, 2007; Harrison & Hanson, 1999; Kelbore, 2015; Muendler, 2010).

During the 1980s and 1990s, the international organizations advised most developing countries to undertake liberalization policies. However, these simultaneous actions by developing countries have resulted in the **'adding-up effect,'** which occurs when the expansion of an economy worsens the trade terms in the global market (Geda et al., 2018). It also led to **'immiserizing growth,'** a situation where the primary gains from trade are outweighed by the decline in terms of trade (Geda, 2017; Kelbore,2015). This implies the concurrent increase in exports by many countries, shifting the global supply curve to a higher level, leading to weak demand and a consequent price decline (Geda, 2018). When the effect of the quantity increase

is less pronounced than the effect of the price decline, then export revenues would decrease, and hence the producers would encounter real interest loss (Akiyama & Larson, 1994; Geda, 2017; Gilbert & Varangis, 2003; Kelbore, 2015; Panagariya & Schiff, 1990). This, in turn, creates instability in export earnings and investment by making exports earnings unreliable sources of finance for investment (Fosu, 1991). Moreover, due to its price inelasticity of demand and absence of barriers, the primary sector is more vulnerable to the adding up effect than manufacturing produces with the potential of product differentiation (Kaplinsky, 2006), given that the decline in terms of trade worsens the deficit in the balance of payments and perpetuates the low-level productivity (Kelbore, 2015). However, some studies show that even manufactured goods exports from low-income economies like African nations are not resistant to the decline in terms of trade either (Akiyama & Larson, 1994; Geda, 2017; Kaplinsky, 2006; Maizels, 2000, 2003).

Moreover, the declining trend of the balance of payment may imply hardships in settling import expenses that enable the acquisition of equipment, machinery, and other technological inputs necessary to increase agricultural productivity and foster structural change. This had also forced many African countries to depend on external debt and aid whenever the commodity price declined, which consistently led many in Africa to an indebtedness-growth trap and macroeconomic instabilities (Geda, 2003, 2017; Ocran & Biekpe, 2008). Furthermore, by opening to the global market without competitive firms in manufacturing and diversified baskets of goods, those countries became primary product exporters exposed to price volatility (Bonaglia & Fukasaku, 2011; Cavalcanti et al., 2011; Geda, 2017, 2018; Morris & Fessehaie, 2014; Ocran & Biekpe, 2008; UNCTAD, 2008).

Similar production patterns and the declining trade term across the continent can be other potential factors for the lack of transformation in trade and production structure in Africa (Kelbore, 2015). In this regard, another important reason for the below potential of Africa's share in global trade is the abundant resource endowment in the continent. For most African countries exporting natural resources, the consequence has been the Dutch disease. As it is extensively illustrated in chapter 2, paragraph 2.4.4, it causes the appreciation in countries' exchange rate, which, in turn, makes the price of their non-resource-based commodities more expensive in the global market and hence reduces their competitiveness (Barrows, 2018; Geda, 2018; Krugman, 1987; Mariara & Mulwa, 2016). This further led to the expansion of the non-tradable sector and the contraction of the tradable (export) sector (Bonaglia & Fukasaku, 2011; Boschini et al., 2013; Brunnschweiler & Bulte, 2008; Guilló & Perez-Sebastian, 2015;

Papyrakis & Gerlagh, 2004; Ross, 2019). Besides, the huge amount of revenue from natural resource abundance generated an incentive for interest groups and political elites to engage in non-productive activities and for corrupted governments to provide fewer public goods and infrastructures to citizens (Andersen & Aslaksen, 2013; Bergougui et al., 2017; Fosu, 2013; Hartwell, 2016; Mariara & Mulwa, 2016; Zallé, 2019).

Commodity dependence creates the possibility of transforming the governments of resource-producing countries into rentier states, distorting the appropriate allocation of resources to productive sectors and hence limiting structural change and economic growth. These rentier states also risk becoming more dependent on revenues from commodities and less dependent on taxes, and, thus, less accountable and more corrupted (Arezki & Van Der Ploeg, 2007; Demissie, 2014; Khan et al., 2020; Mehrara et al., 2009). This condition could encourage states to dedicate more endeavors to interventionist and distributive functions than regulating, supervising, coordinating, and managing their economies (Arezki et al., 2011; Cárdenas et al., 2011; Gylfason, 2001).

This, coupled with a lack of accountability and transparency on how revenues are distributed, makes it quite challenging for states to alter their spending habits when declines in price happen (Auty, 2001; Busse & Gröning, 2013; Demissie, 2014). In addition, commodity dependence could also lead to violent conflicts and frequent wars (Collier & Hoeffler, 2002; Elbadawi & Sambanis, 2000; Fosu, 2011, 2013).

Collectively, all the reasons mentioned above had an adverse effect on structural change and led to autocracy, violence, wars, and a high level of corruption and poverty in Africa in the 1980s and 1990s (Busse et al., 2019). As a result, after 1990, structural change has been growth reducing, with labor shifts from the stagnating agricultural sector directly to the service and informal sector, distinguished by even lower productivity levels (Timmer et al., 2012).

Inappropriate policies and low-quality institutions have significantly contributed to Africa's weak and fragile structural change (Naudé, 2019; Nicet, 2020; Totouom et al., 2019). Kelbore (2015) put forward two reasons for the poor performance of African structural change. Firstly, despite the theoretical and policy predictions, the commodity-dominated export structure and the manufactured goods-dominated imports' composition have shown a minimal change during post-liberalization trade engagements. Secondly, the narrow industrial base and the failure to incorporate domestic investment and institution-building strategies with trade liberalization reforms may have hampered Africa's struggles to overcome its dependence on commodities.

As a result, since the 1990s, a resurgence has been witnessed in academics and policy interests (including the IMF & WB) on the importance of governance and on the quality of institutions in economic development and transformations (Chang 2006; 2011; Chang & Andreoni, 2019). African economies are characterized by institutional incapabilities and human capital deficiency, and inadequate infrastructure (Geda, 2018). The proper management of the revenue from commodity trade while trying to avoid the related conflicts of interest requires institutional building and human capital accumulation aimed, among other things, at domestic investment, export diversification, and infrastructural development (Ajakaiye & Ali, 2009; Geda, 2018; Kelbore, 2015).

To realize these aims, it is not the nature of commodities and their export trend that matters the most, but the type, nature, and quality of institutions. For instance, Fosu (2011; 2013) shows that in the presence of institutional quality, the impact of resources dependence on growth is positive and negative in the case of the absence of quality. This argument implies that countries need to reform their institutions and build their human capital and infrastructure for trade liberalization and openness to have the desired effect on growth and structural change (Kelbore, 2015). Most importantly, policies on openness to trade or investment can be advantageous for countries when they integrate these policies with institution-building strategies that enable domestic entrepreneurs to be competent enough to take up the opportunities in the global market (Rodrik, 2001).

4.2 Premature de-industrialization in Africa

After a "lost generation" lived in 1970–1995, since 2000, African nations seem to have engaged in remarkable economic progress (Cadot et al., 2016). Nevertheless, there is little evidence that structural change has triggered the recent growth in Africa since the industrialization level remains very low and stagnated for a long period of time (McMillan & Rodrik, 2011; Page, 2012). (Page, 2012b). The rapid economic growth in Africa is unusually accompanied by fragile and slow structural change, mainly characterized by a direct shift of labor from agriculture to low-productivity-low-skilled service and informal sectors (Aryeetey & Moyo, 2012; Carraro & Karfakis, 2018). This is in contrast with the path followed by most of today's developed countries, which moved from being traditional agricultural societies to

advanced manufacturing-based economies and then to services-dominated nations (Herrendorf et al., 2013; 2014; Jha and Afrin, 2017).

Ideally, the manufacturing sector should be adequately developed and persist long enough before it cedes its place as an engine of growth to the services sector (Nicet, 2020; Rodrik, 2015, 2016). However, this pattern of change in sectoral composition, particularly in manufacturing, has not been the trend in large parts of Africa, where structural change appears to have bypassed the industrialization that could ensure economic development (Cadot et al., 2016; Rodrik, 2016; Timmer et al., 2015). African countries succeeded in neither developing their domestic manufacturing nor turning their latent comparative advantages into competitive advantages in the global market. As a result, they reached the turning point of manufacturing prematurely at a very low-income level compared to developed countries (Cadot et al., 2016). Instead, the decrease in the GDP share of the agricultural sector has been followed by a massive increase in the GDP share of the service sector (AfDB, 2017; Haraguchi et al., 2019). The agriculture and service sector currently account for the biggest shares of African GDP on average: 22 percent and 50 percent, respectively (Naudé, 2019).

The African **premature de-industrialization** trend seems to be unreversed by the recent growth resurgence (Cadot et al., 2016; Jha & Afrin, 2017). Despite the impressive rapid economic growth rates in Africa since 2000, growth in the manufacturing sector has continued to lag behind the world, except in a few outstanding markets in Tanzania, Ethiopia, Nigeria, and Kenya (ACET, 2014).

Despite this stagnation in the manufacturing sector, the boom in the construction and mining sector in several African countries somewhat increased the industry's sector share as a whole, which is divided into two: manufacturing and non-manufacturing (Jha & Afrin, 2017; Signé & Johnson, 2018). The non-manufacturing sector mainly consists of the mining, quarrying, and construction sectors. These resource-based sectors in the non-manufacturing industry account for almost half of total MVA and industrial exports, negatively affecting the development of manufacturing (Nissanke, 2019; Totouom et al., 2019). On one side, oil extraction and mining are mainly controlled by the state or by FDI, and revenues are mainly reinvested in services in the first case or transferred abroad in the second (Samouel et al., 2016; Totouom et al., 2019). But, on the other hand, these sectors are capital intensive and cannot absorb the surplus agricultural labor (Nicet, 2020; Rodrik, 2013c).

As mentioned before, the manufacturing sector is the branch of activity that offers the highest opportunities in terms of jobs, poverty reduction, and sustainable growth in Africa.

Hence, it is interesting to see how the different sub-components of the industrial sector in general and of the manufacturing sector, in particular, have varied over time.

According to Totouom et al. (2019), the manufacturing sector has the lowest share in the industrial sector. Its curve is below that of the non-manufacturing sector. The relative importance of the non-manufacturing sector is justified by the fact that most African countries have an economy that is scantily diversified and heavily dependent on mining, and very recently, on construction. Even if agricultural activities still involve most of the labor, there is a net decrease in the trend of the agricultural sector. In contrast, the proportion of employment in the services is in a constant increase (Totouom et al., 2019; Jha and Afrin, 2017). An exaggerated export concentration on oil and mining can have a deterrent effect on manufacturing growth mainly due to its Dutch disease effect associated with real exchange rate appreciation (Cadot et al., 2016; Jha & Afrin, 2017).

Natural resource and commodity booms can trigger economic growth with the possibilities of all the issues mentioned before in Chapter 2, paragraph 2.4.4.4: low labor absorption, capital intensity, and the politics of rentier states (Rodrik, 2013). As a result, Africa has been deindustrializing. The income level at which the decline in the share of manufacturing-deindustrialization starts is much lower compared to other regions: implying, as said before, the presence of premature de-industrialization (see also Rodrik, 2013b, 2016; Timmer et al., 2015). The region has been known for decreasing agricultural and industrial sector value added in the overall period, witnessing the trend of de-industrialization since the 1970s (Page, 2012b).

The structural change in most African economies has been marked not only with an increasing trend in the service sector and a declining trend in the agriculture sector but also with a deteriorating manufacturing sector, implying a trend that skipped the second step of the transformation ladder (IMF, 2012; Alagidede et al., 2020). The global economy that Africa is engaging in today is drastically different from the world confronted by developed countries in the 1970s that opened up and industrialized during that time.

Rodrik (2016) indicates that latecomers to the phase of industrialization seem to reach a turning point of manufacturing value added-to-GDP ratio much earlier than advanced economies. Interestingly, for African countries, the trend is downwards for the 1990–2010 period: the countries that reached their peak more recently reached their highest point at a very lower level. According to Rodrik (2016), the slope is negative, suggesting that a lower manufacturing employment peak characterizes the turning points reached later. Strikingly,

most African countries documented in the Rodrik sample reached their peak prematurely and at a very low level compared to other developing countries (Cadot et al., 2016). All in all, the period between 1995–2010, during which African countries should have collected the fruits of industrial policy reforms and a fresh increase in manufacturing activities, did not characterize structural change (Cadot et al., 2016).

Since structural change "bypassed" the secondary sector in Africa (Totouom et al., 2019), neither the common model of industrialization nor the idiosyncratic "factory less" model of development strategy seems to be working in Africa (Cadot et al., 2016). So far, national development experiences without factories are uncommon to serve as a growth model (Cadot et al., 2016). However, manufacturing still seems to be the crucial determinant of economic development (Opoku and Yan, 2019), even if the structure of most African countries has not witnessed a magnificent change over the past five decades (ACET, 2014; Totouom et al., 2019). However, the share of the industrial sector remains very little in Africa, even with the smallest share of manufacturing. The trend of the manufacturing sector, which, as discussed, determines structural change and economic development, is unusual and declining in Africa (Nguimkeu & Zeufack, 2019).

The GDP share of manufacturing value-added exhibits a persistent downward trend instead of converging up as incomes rise (Cadot et al., 2016). Despite the slightly positive contributions of the changes in sectoral employment and productivity to economic growth since 2000, the manufacturing sector has not been the major beneficiary of this labor reallocation and productivity growth.

However, due to downstream and upstream sectors like extraction and construction, manufacturing became among the top sectors for the flow of FDI into Africa, accounting for 22 % of total FDI inflows in 2015 (Signé & Johnson, 2018). Moreover, in recent years, intra-African trade and regional integrations in manufactured goods have risen from 10% of total trade in 2000 to 18% in 2016 (ibid). Africa, nevertheless, needs a huge number of jobs in high productivity sectors, coupled with higher spillover effects, and neither agriculture nor mining can meet these demands alone. Hence, recently there has been a substantial emphasis on promoting the manufacturing sector in Africa. In order to promote manufacturing, African regional governments are reducing trade barriers, enhancing financial development, and investing in infra structures, especially transportation and energy networks, the internet, and telecommunications (Signé & Johnson, 2018).

4.3 Counterarguments on premature de-industrialization in Africa

A piece of contrasting evidence is emerging on the tendency of developing countries to undertake a different path towards economic growth rather than industrialization (Diao et al., 2017; Rodrik, 2016).

More specifically, premature de-industrialization is becoming a new trend in developing countries, especially in Africa. Recently, some scholars have expressed their doubt and started questioning whether African countries have been de-industrializing or not. These scholars are against Rodrik's claims of premature de-industrialization in several developing countries. Rodrik's sample includes only one-fifth of African countries and may not represent the case of most countries in the continent (Nguimkeu & Zeufack, 2019). This implies a shortage of literature emphasizing Africa's manufacturing trend.

In order to tackle this limitation, Nguimkeu & Zeufack (2019) used panel data on 41 African countries from 1960 to 2016 to study the extent, scale, and causes of "de-industrialization." They used two major industrialization measures: the total share of manufacturing employment the GDP share of manufacturing value-added.

According to them, in terms of the share of manufacturing employment, most countries did not undergo the path of de-industrialization, except for the southern region of Africa that has been de-industrializing (Nguimkeu & Zeufack, 2019; Naudé, 2019). However, the results of the GDP share of manufacturing value-added for the full sample demonstrate that manufacturing has a declining trend in Africa and follows an inverted U-shape (Nguimkeu & Zeufack, 2019). Therefore, the trend of manufacturing employment does not follow an inverted U-shape, while manufacturing output follows an inversely U-shaped trend. Similarly, based on Tregenna's (2011) proposition that the shares in both employment and GDP share of manufacturing should have a declining trend before claiming the occurrence of de-industrialization, Naudé (2019) found that the GDP share of manufacturing in Africa has declined (from 16,4 % in 1981 to 9,4 % in 2011), while its employment share is increasing.

Using trend analysis, Edjigu & Naudé (2019) examine whether Africa is de-industrializing or not and show that when the GDP share in manufacturing value-added is used as the only measure of industrialization, African countries are indeed de-industrializing. However, when measurements - such as the absolute size of manufacturing value-added, employment, and the share of manufacturing exports are used, there is no proof of de-industrialization. Diao et al. (2018) claim that it is tricky to conclude that African countries are

de-industrializing and suggest that most of the countries in their sample still have the potential for industrializing.

In line with this optimism, Naudé (2019a) argues that the proponents of de-industrialization in Africa are only considering the declining GDP share of manufacturing, but looking at employment in manufacturing, it grew on average by more than 5 % per year. Signé & Johnson (2018) claim that from 2005 to 2014, manufacturing employment in Africa has been growing on average by 3.5 % percent annually. Some countries, i.e., Angola and Nigeria, have witnessed over a 10 % increase in manufacturing output per year. As a result, there was an increase from $75 billion in 2005 to over $130 billion in 2016 in the value of manufacturing production in Africa (Signé & Johnson, 2018). The recent advancement made in all these aspects renders support for the optimism regarding Africa's future industrialization by authors such as Naud'e:2019a; Nguimkeu and Zeufack,2019; Sign'e, 2018 and Naudé, 2019; Diao et al., 2018.

However, considering the success of export-oriented, manufacturing-led industrialization in East Asia countries, the extent of industrialization in Africa might not be called successful industrialization (Diao et al., 2018). Those countries have broadened their industrial base through the demand of external markets for manufacturing goods (Nicet, 2020). The manufacturing sector was a crucial component of global demand with export diversification through manufactured goods. Nowadays, services account for more than 70% of jobs and 50% of world income (IMF, 2017).

Hence, services are becoming at the forefront of the global demand at the expense of the demand for manufactured goods, depriving the manufacturing development opportunities in developing countries that are struggling with small domestic markets (Nicet & Asse, 2021). The rising trend of the global demand for services and the small and weak domestic demand for manufactured goods contribute to Africa's low level of industrialization.

African countries are endeavoring to enter the global market too late, while the global competition is escalating and emphasizes high-tech and service components. In this condition, neither the global demand nor the domestic market can serve as a basement for the industrialization process in Africa since the domestic markets are very narrow (Nicet, 2020).

Furthermore, the shift of the developed world towards services, coupled with rapid technological upgrading such as recent advancements in automation, has made economic development through manufacturing much more difficult in contemporary developing countries (Eichengreen & Guptay, 2013; IMF, 2018). Indeed, this is in line with the existing

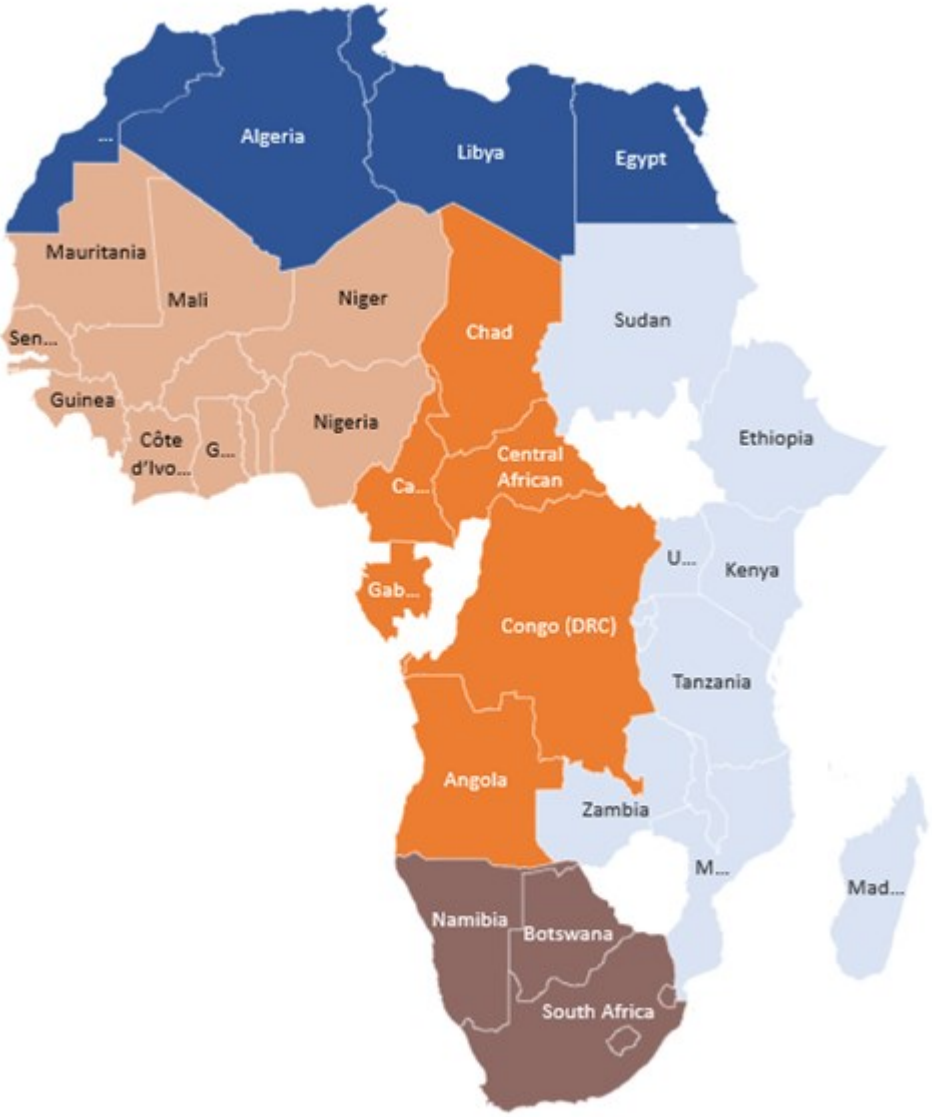
theories on the leapfrogging stages of development towards rapid catch up with advanced economies (Brezis et al., 1993; Haraguchi et al., 2019). However, instead of catching up either through manufacturing or service sectors, African countries' growth relies on the resource and primary sectors, and price booms in the global market (Rodrik, 2013). This line of reasoning is also supported by the growth resurgence in Africa since 2000, which mainly depends on commodity and resource booms.

4.4 Growth resurgence and structural change in Africa

Since 2000, Africa has been perceived as a flourishing continent due to the decreasing poverty levels, emerging middle class, improved democratization, and rapidly expanding urbanization (Cadot et al., 2016). In addition, the continent has been experiencing primary products export booms externally coupled with a construction boom internally with extensively expanding services (Busse et al., 2019).

With its rapid economic growth, a sharp decline in poverty level, and the unprecedented wave of FDI, economic narratives regarding Africa has been largely positive over the past fifteen years, with remarkable socioeconomic improvements backed up by the radical change of course in economic policy (Cadot et al., 2016). According to Cadot et al. (2016), African countries deployed well-articulated macroeconomic policies during this period, liberalized their markets and trade, privatized most state-owned enterprises, and reduced export monopolies. These policies, in turn, have reduced uncertainty, distortions, and transaction costs. Busse et al. (2019) also argue that the enhanced political stability, the decreasing number of conflicts and wars and fewer macroeconomic distortions and uncertainties, economic liberalization, education, and the development of infrastructures have improved the economic performance in many African countries. Hence, the overall macroeconomic situations and performance have been substantially improved in African economies (Page, 2018; Cadot et al., 2016). The economic reforms triggered an average GDP per capita growth of over 2% annually and an increase in FDI of over thirty billion dollars. What follows in next pages is a descriptive review of the dynamics of growth, divergence and structural change in Africa, which complement and adds to the evidence found by the existing literature. In order to do so, Africa has been analyzed as a whole and divided by regions: North Africa, Central Africa, Western Africa, East Africa, and South Africa. Map 4.1 reports the division of the continent among regions used in this dissertation.

Map 4.1. Regions of Africa



Source: author's elaboration

In less than twenty years, the growth resurgence in Africa further led to a decrease in poverty level, from 57% to 41%. During the same period, there was a dramatic decrease in the incidence of conflict and violence, which led to a remarkable decrease in the number of civil wars per annum by half and promoted democracy in many African nations.

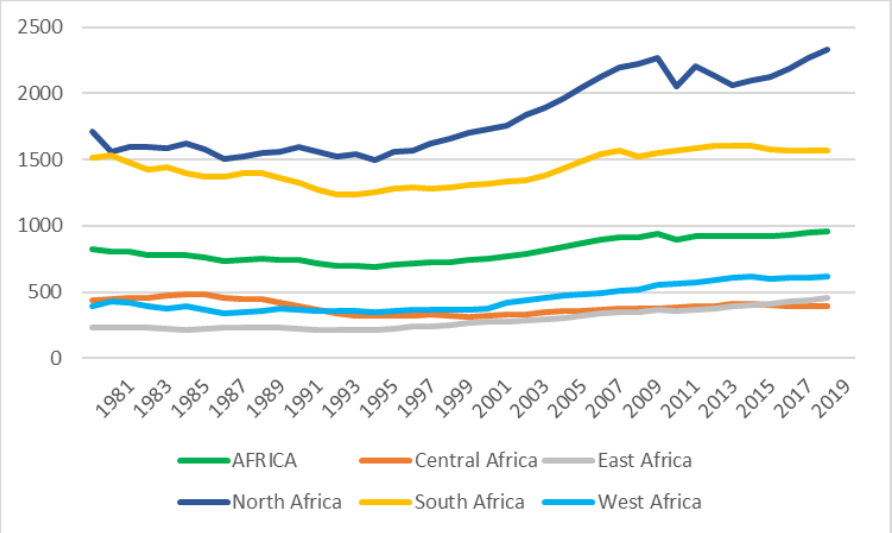
However, despite this remarkable performance, the continent is still trapped in a high unemployment rate and struggling to create sufficient jobs to reduce the possible risks of massive migration and political disorder (Page, 2018). Moreover, mainly due to their dependence on natural resources as a source of revenue, most resource-rich developing countries are dealing with issues related to poor institutional quality (Totouom et al., 2019).

Although it is a world phenomenon, there are some pieces of evidence that corruption is a widespread phenomenon in Africa (Cadot et al., 2016).

As a result, the rebound in economic growth after 2000 is not structural change driven and hence increasingly fragile, even if with remarkable differences across regions (see figure 4.1).

As shown in Figure 4.1, while having been almost constant until the beginning of the new millennium, Africa's GDP has then started to grow, even if only at a very low average annual growth rate. Nevertheless, there are wide differences across African regions, and these differences have increased over time. Central and East Africa seem to have always been struggling at the bottom of the chart, while North Africa and South Africa are characterized by a remarkably higher level of GDP per capita. The highest level has been reached by North Africa in 2019, which surpassed 2,300 US$ (with Central Africa not reaching 400 US$ for the same year).

Figure 4.1 - GDP per capita (constant 2000 Prices, US $)



Source: Author's calculations based on AfDB, 2019.

Several authors (Cadot et al., 2016; Diao et al., 2017; Mc Millan et al., 2017; McMillan et al., 2014; McMillan & Headey, 2014; Mcmillan & Harttgen, 2014; Rodrik, 2014b) identified the same trend in GDP per capita.

As already highlighted, a rapid expansion towards the service sector caused a drastic decline in the share of agricultural employment in Africa (fig. 4.2a). The decline characterized all regions, even if with wide differences among them. Between 1991 and 2020, strong

contractions occurred in West and East Africa, where the employment share of agriculture dropped from 57% to 39% and from 39% to 23%, respectively. This is in line with the shift of labor force from agriculture to non-traditional sector that has also been claimed in the literature. Furthermore, data (fig. 4.2c) show that this trend corresponds to an increase in agricultural productivity during the same period.

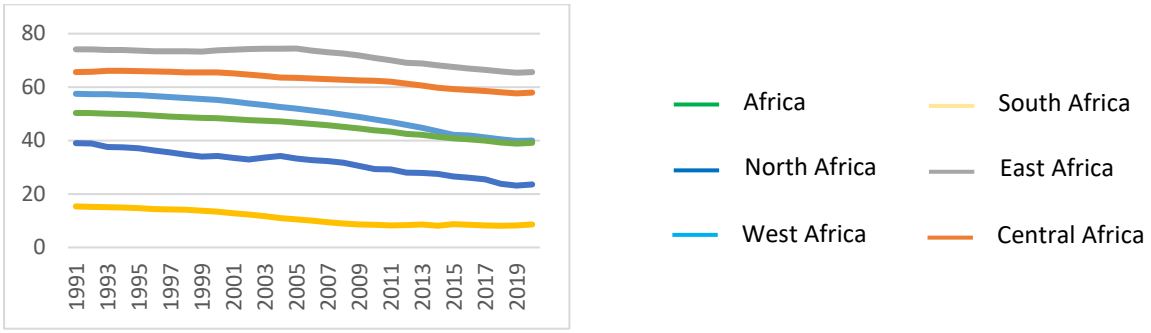
Agricultural productivity in Africa has remarkably grown, passing from $4,724 in 1991 to $11,557 in 2019 (fig. 4.2c). This is consistent with the hypothesis that the movement of labor out of the manufacturing sector increases the productivity of agriculture. However, looking at regional data, it clearly appears that this trend has been, in practice, almost exclusively driven by the exceptional growth experienced by North Africa, which passed from a value of per worker value added of 4,966 US$ in 2007 to more than 10,000 in 2019.

This advancement in agricultural productivity has been accompanied by an increase in total agricultural export (fig. 4.2b), especially after 2000. In this case the contribution to growth is much more distributed across regions, with the exception of Central Africa. Even if all African regions in 1980 were very close in terms of agricultural exports, in the last few years some of them have been able to grow much faster than others, increasing the gap with the lagging behind areas. This increase in agricultural exports is one of the reasons of the relatively faster growth of Africa starting from 2000.

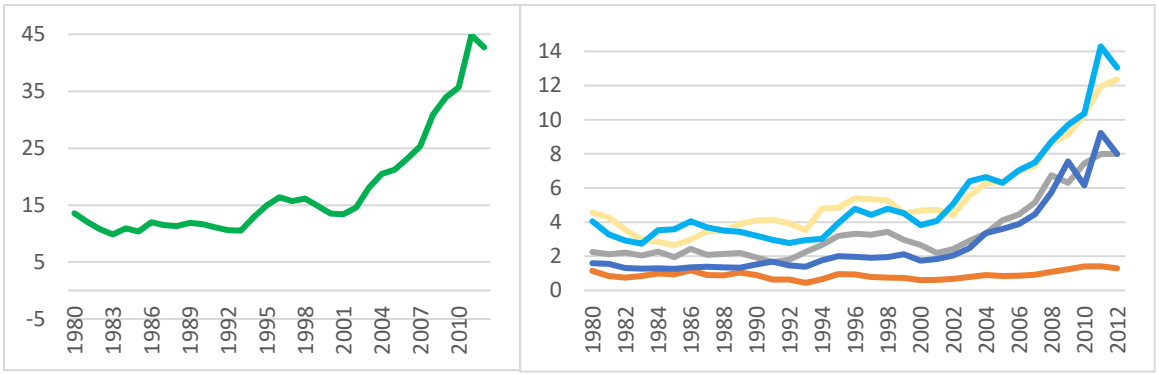
Despite the rises in agricultural productivity and exports, the GDP share of the agricultural sector has not witnessed an equally significant increase in Africa (fig. 4.2d). One possible explanation for this can be that the sector to which labor shifted from agriculture did not have a backward linkage with the agricultural sector (as proposed by Hirschman, 1958 and Kaplinsky, 2011, see chapter 2). Another explanation might be that the contribution to GDP value added given by other sectors has grown more than agriculture, as in figure 4.3b. This might be interpreted as a signal of a possible ongoing structural change.

Figure 4.2 Employment, GDP share, labor productivity and total exports of agriculture

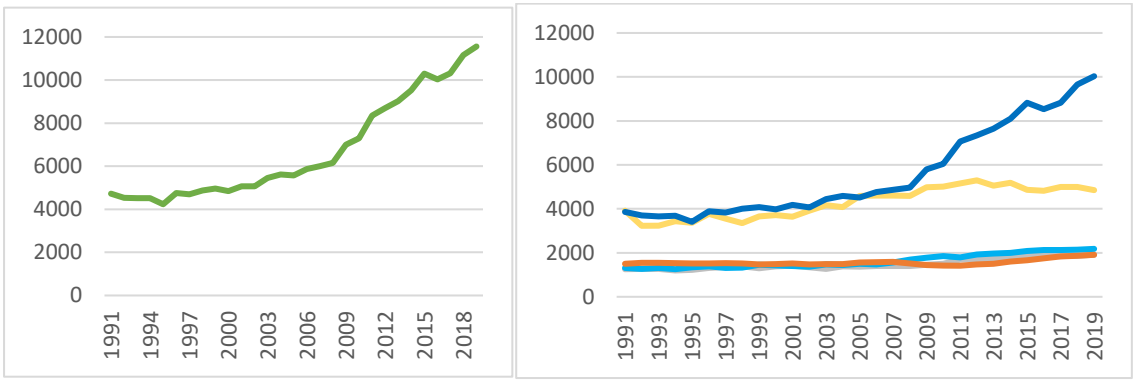
a) Total employment share of agriculture



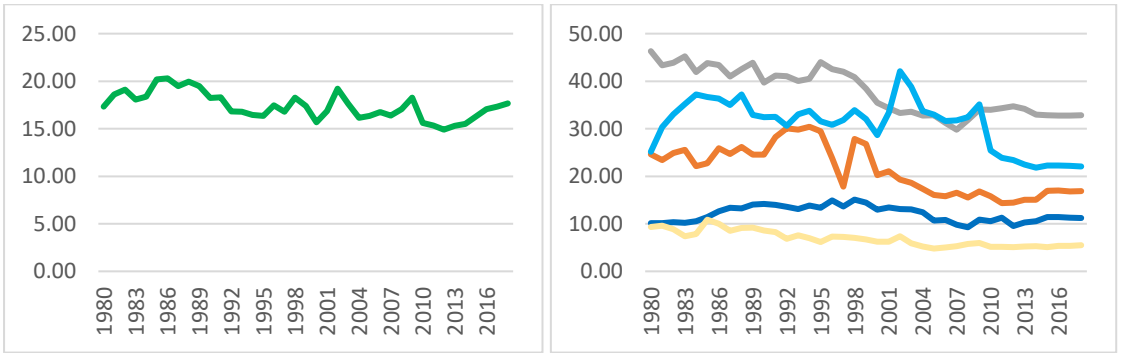
b) Total agricultural export (b. US$)



c) Agricultural productivity (value added per worker)



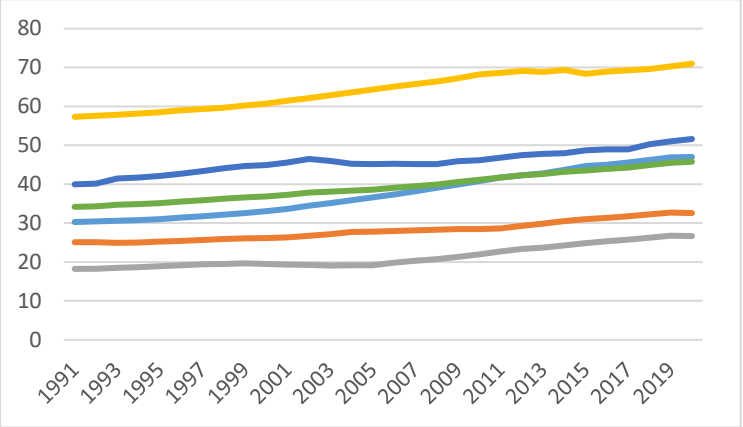
d) GDP share of agricultural value added



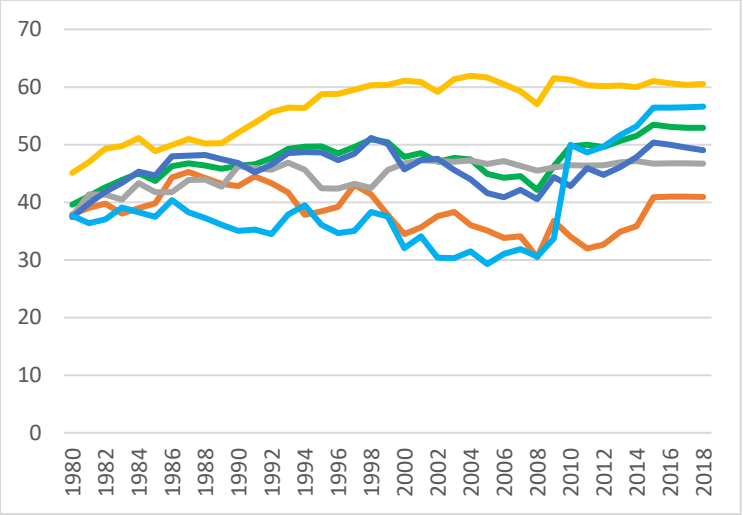
Source: Author's calculations on data from ILO, 2020, WDI, 2021 and AfDB, 2019.

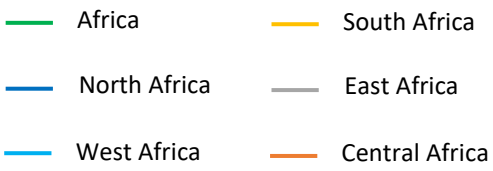
Figure 4.3 - Employment and GDP share of the service sector

a) Employment share of services



b) GDP share of services





Source: Author's calculations on data from ILO, 2020, WDI, 2021 and AfDB, 2019.

The picture has, in fact, to be completed by analyzing the information related to the secondary and the tertiary sector. Coherently with the premature de-industrialization that many authors have identified for Africa, as it has extensively been explained in the previous chapters, the decrease in agriculture manufacturing corresponds to an increase in the employment share of services (fig. 4.3a), which passed from 34.1% in 1980 to 45.7% in 2020, with an average annual growth rate of 0.33%. All African regions have witnessed the same trend, even if there are no signals of convergence among them. Actually, the gap between the region with the highest value (South Africa) and the one with the lowest (East Africa) seem to have slightly increased over time.

The increasing relevance of services is also confirmed by the trend of GDP value added in the tertiary sector (fig. 4.2b), which overall increased by about 13 percentage points from

1980 to 2018. This trend is consistent with the findings of an extensive literature (Badiane et al., 2012; Cadot et al., 2016; de Vries et al., 2015; Ghani & O'Connell, 2014; Nicet, 2020; Page, 2012, 2018; Rodrik, 2014b, 2018; Timmer et al., 2015; Totouom et al., 2019; Asse & Nicet, 2021). Once again, regional differences have raised over time, but the service sector is nevertheless quite dynamic, as testified, for example, by the remarkable growth registered by West Africa, which over the years has been able to fill the gap with the region with the highest percentage of GDP value added produced by the tertiary sector, i.e. South Africa (fig. 4.2b).

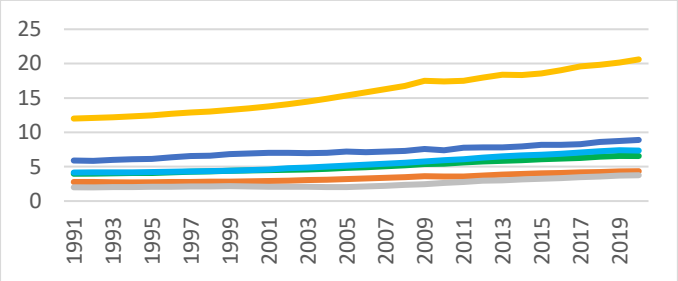
More information can be drawn by separating the high value services from the low value added ones (fig. 4.3) (the residual category "other sectors" is not analyzed). As regards Africa as a whole, both the share of employment and of GDP devoted to high value added services is remarkably lower than the share of low value added ones, which still prevail in all African regions. Separating low and high value added services it is possible to see that the remarkable growth of the tertiary sector employment experienced by West Africa is mainly due to an increase in low value added activities, whose contribution to GDP also increased, even if with an irregular trend. However, as specially regards West Africa, we can also see that despite a low, but regular, growth in the people employed in high value added services, the contribution to GDP of such services has increased in a more rapid way.

Another interesting case is South Africa, in which the employment in high value added services has constantly risen over time, in correspondence with a decline in the number of people working in low value added services. In 2019, for this region (and only for this region in the whole country), the high value added services employment share was higher than that of low value added services. In the remaining areas of the country, the contribution to employment and GDP of high value added services remains low and rather stagnant, and also the low value added services register much lower values than the remaining regions, especially in terms of employment (fig. 4.4c).

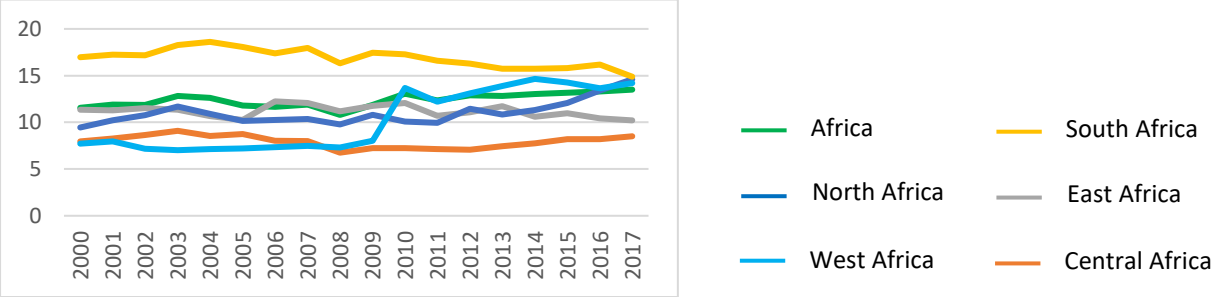
There are various reasons to explain the shift towards services. From an internal perspective, the economic reforms emphasized market-oriented policies in the 1990s, possibly boosting the demand for retailing and wholesaling services. From the external perspective, they encouraged a higher level of imports of consumer goods, and through FDI, they facilitated the expansion of foreign retail chains (Carraro & Karfakis, 2018; De Vries et al., 2015). Moreover, the increasing incomes related to commodity exports triggered the shift of a higher level of domestic demand into the consumption of various services.

Figure 4.4 Employment and GDP share of high value added services (finance, insurance, real state, transport & storage, communication, and business services) and low value added services (wholesale, retail, hotels, and restaurants)

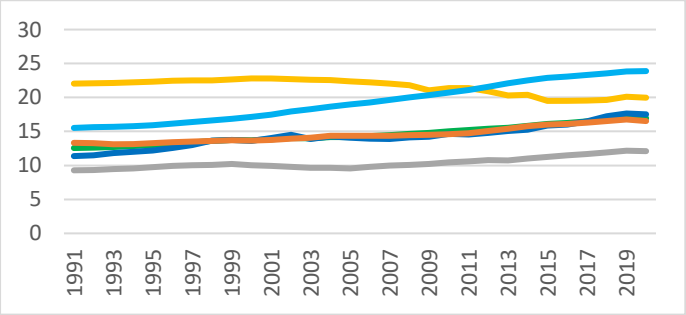
a) Employment share in high value added services



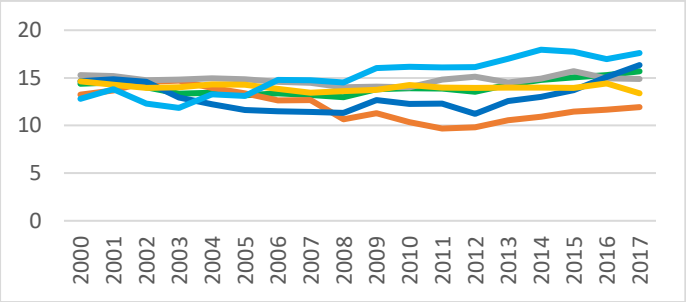
b) GDP share in high vale added services



c) Employment share in low value added services



d) GDP share in low value added services

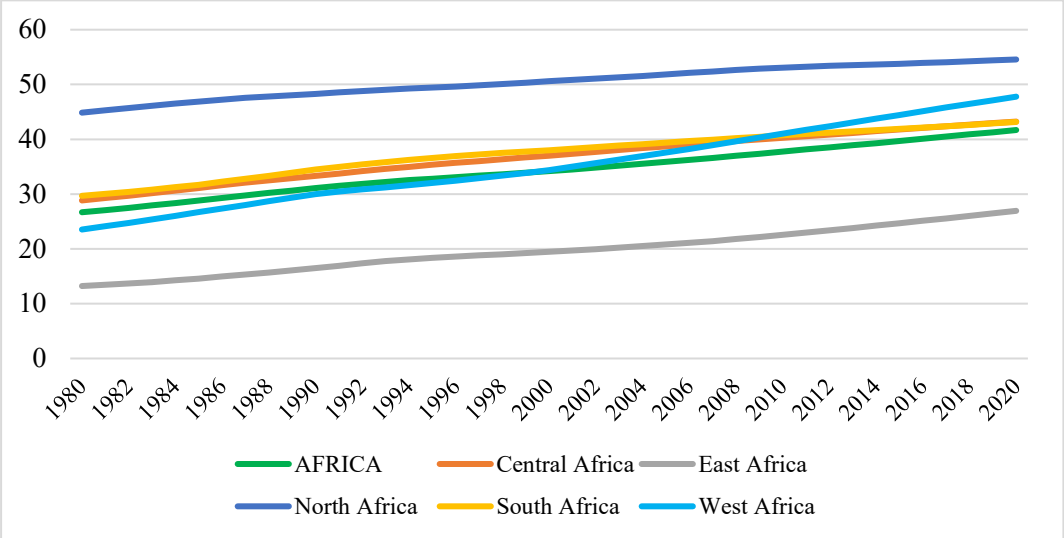


Source: Author's calculations on data from ILO, 2020, WDI, 2021 and AfDB, 2019.

This rising demand for services, however, did not affect all Africa in the same way. In particular, it has been much more intense in cities due to the rising demand for services in urban areas, such as banking, transportation, telecommunication, and trading services (Jedwab,

2013). Gollin et al. (2016) also show the existence of a higher demand for non-durable goods and services in resource-rentier countries, leading to the expansion of "consumer cities".

Figure 4.5 - Urban population share (% of total) in Africa and Africa's sub-regions, 1980-2020



Source: Author's calculations on AfDB, 2019 database.

Urbanization goes hand in hand with industrialization because workers gradually move from less productive agricultural activities to more productive industrial ones, which are located in urban centers. As a confirmation of the fact that this same phenomenon is also happening in Africa, numbers show that there has been a considerable increase in the share of urban population in the continent and in all its regions (figure 4.5).

The highest growth in the level of urban population growth is registered in West Africa, where it increased by 26.2%. Interestingly, this corresponds to the highest decline in agricultural employment (fig. 4.2a) and to the highest growth in secondary and tertiary employment. The same is true for the whole Africa, where the rapid urbanization is accompanied by an extensive expansion of the service sector.

The decreasing trend of the manufacturing sector in both employment and GDP share (figure 4.6c and 4.6d) points to the presence of consumption cities instead of production cities. Production cities arise from an increased income level that enables households to consume more tradable manufacturing goods (Gollin et al., 2016). However, this link does not always exist in resource-producing countries (Gollin et al., 2016; Nicet, 2020). Instead, urbanization is defined by a rapidly growing number population not pursuing and taking part in urban employment, but purchasing non-tradable goods and services, mainly found in cities. Gollin et

al. (2016) also claim that the increase in income levels that comes from the export of natural resources makes cities richer, but it does not contribute to an improved standard of living in the same way that an increased income through industrialization would contribute, leading to what authors call **"premature urbanization".**

This also seems to be the case of Africa, where the natural resource curse has caused the decline in manufacturing, while creating consumption cities towards the rapidly expanding service sectors (Davis, 1995; Barrows, 2018). As it has been already emphasized (see chapter 2), the effects of the Dutch disease technically refer to the creation of a booming sector (the resource-related one), a lagging sector that includes tradable goods (from agriculture and manufacturing) and a sector of non-tradable goods including the construction industry, real estates, etc. (DeKorne, 2011; Corden & Neary, 1982).

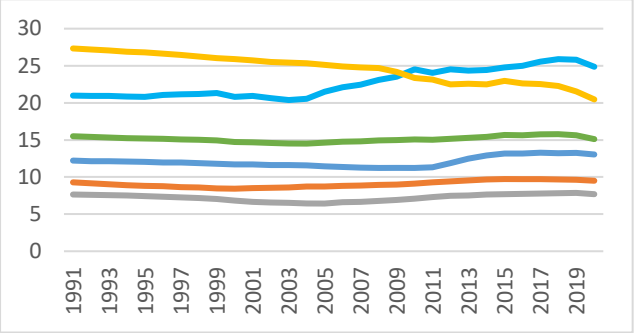
These effects are visible in Africa: (1) the service sector is growing (fig. 4.3), (2) manufacturing is lagging behind (fig. 4.6) and (3) there is an increase in a non-tradable sector: the construction industry (figure 4.7).

In particular, if the share of industry is rather stable over time in terms of employment (fig. 4.6a), it is however decreasing in terms of GDP share (fig. 4.6b). Such fall is particularly evident for the manufacturing sector (fig. 4.6c and fig. 4.6d). Conversely, the industrial sector sees the expansion of mining & quarrying and construction (fig. 4.7a) (Jha & Afrin, 2017; Signé & Johnson, 2018; Nicet, 2020).

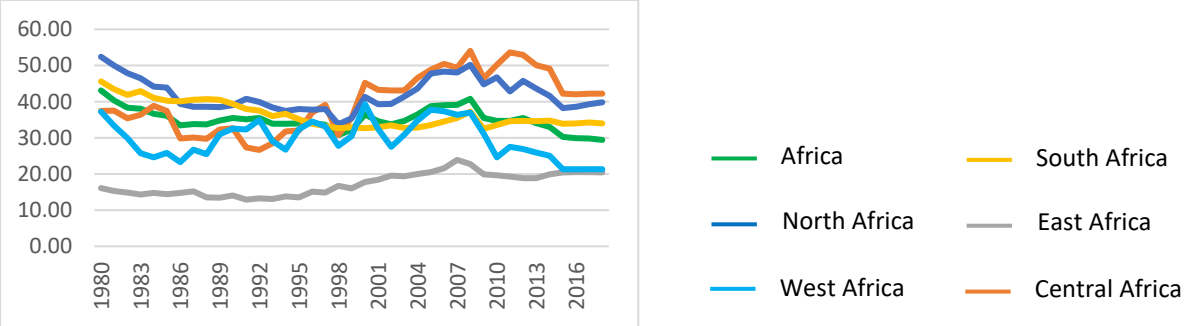
These numbers once again seem to confirm the stream of the literature that asserts that Africa is following the path of premature deindustrialization (see section 2.4.4) that Rodrick (2016) proclaims to be the case of Africa, while contradicting some studies which claim that Africa is not de-industrializing in terms of employment share (Diao et al. 2018; Nguimkeu & Zeufack, 2019; Edjigu & Naud'e, 2019).

Figure 4.6 - Employment and GDP share of industry and manufacturing sector

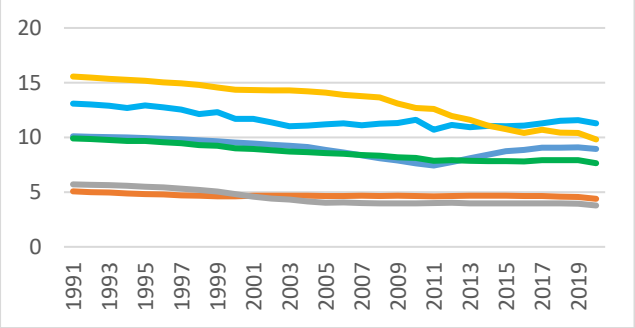
a) Employment share of industry



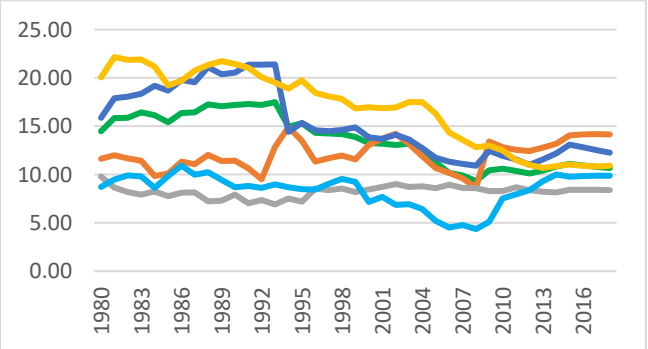
b) GDP share of industrial value added



c) Employment share in manufacturing



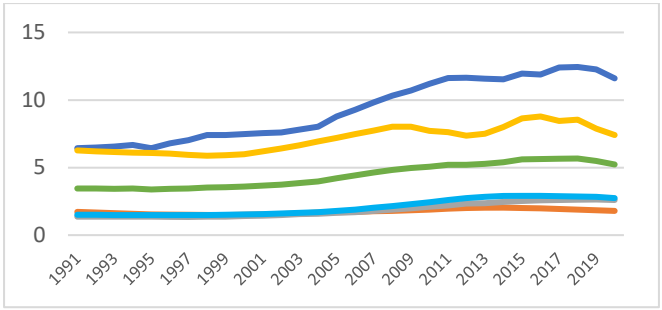
d) GDP share of manufacturing value added



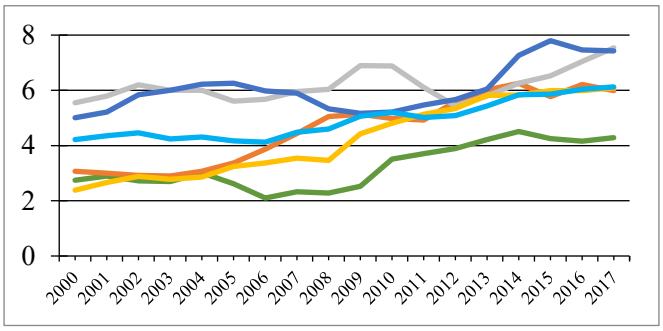
Source: Author's calculations on data from ILO, 2020, WDI, 2021 and AfDB, 2019.

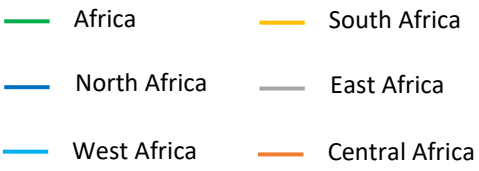
Figure 4.7 - Employment and GDP share of construction, mining and quarrying sectors

a) Employment share of the construction sector

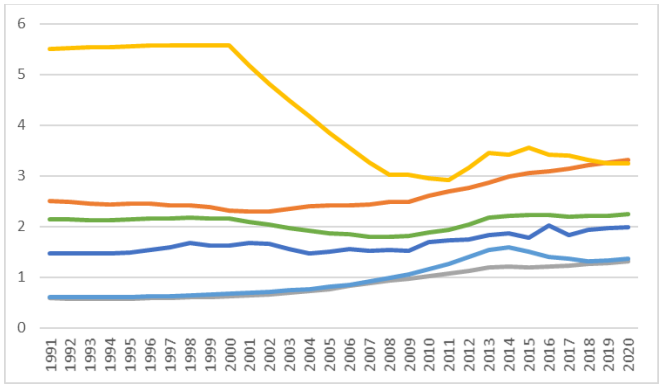


b) GDP share of the construction sector

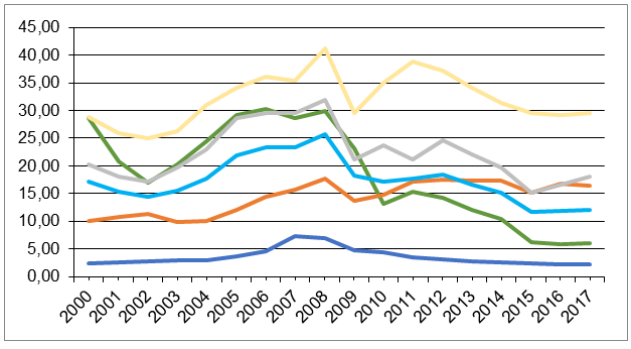




c) Employment share of mining and quarrying



d) GDP share of mining and quarrying



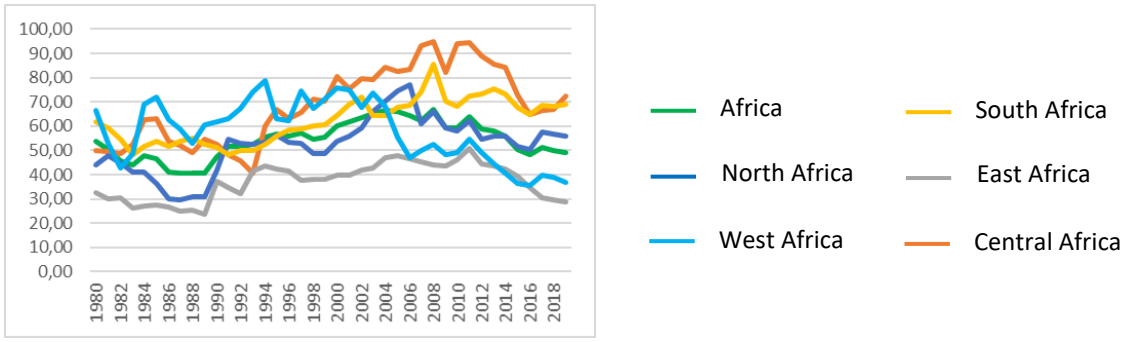
Source: Author's calculations on data from ILO, 2020, WDI, 2021 and AfDB, 2019.

As instead regards Africa's positioning on the international markets, the subsequent technology gap outstretched in both manufacturing and services; De Vries et al. (2015) indicates that the relative productivity in Africa has consistently declined across sectors since the 1980s. Despite the rapid changes in some sub-sectors of the service sector with higher productivity, such as telecommunications, the deployment of advanced ICT technologies of the global trajectory in retailing and wholesaling activities have barely started in Africa (Triplett & Bosworth, 2004). Due to the missed acquisition of skills, technology, and knowledge and to the lack of rigorous productivity-enhancing investment in newly emerging dynamic sectors, Africa's comparative advantage in natural resources remained static (Nissanke, 2019). As a result, since the early 1990s, African countries have failed to ensure productivity-enhancing structural change (De Vries et al., 2015; Nissanke, 2019).

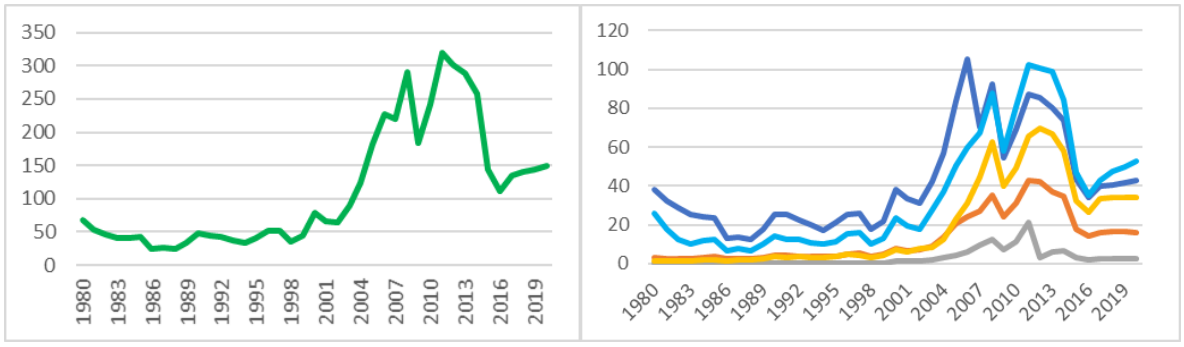
As shown in figure 4.8a, after a period of growth in the GDP share of total trade, which passed from 53.5% in 1980 to 60.1% in 2000, after the beginning of the new millennium the trend changed, and the values passed from 60.1% in 2000 to 49% in 2019. The worst decline occurred in West Africa, which, as we have seen, is also the African region that experienced the highest growth in the service sector. The prevalence of non-exportable domestic sectors and a higher impact of the deindustrialization process might provide an – at least partial – explanation for this trend.

Figure 4.8 GDP share of total trade and terms of trade

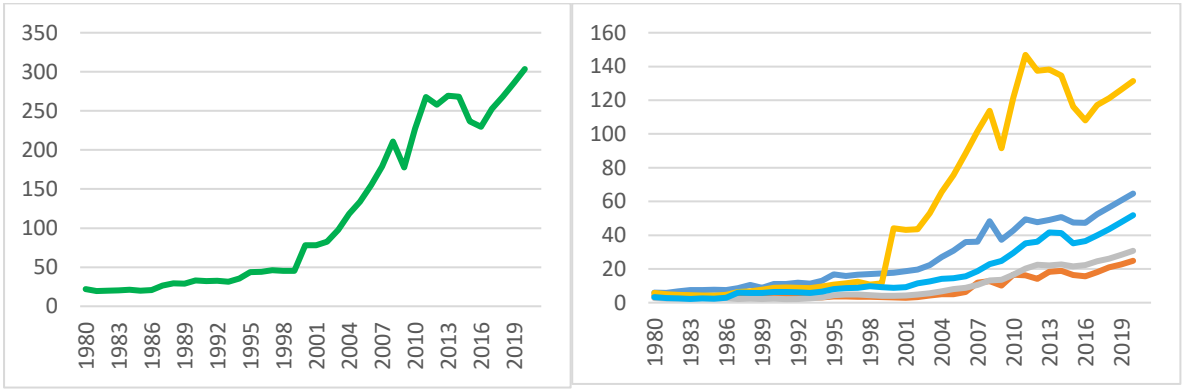
a) Total trade as % of GDP



b) Value of oil exports (b. cur. USD)



d) Value of non oil exports (b. cur. USD)



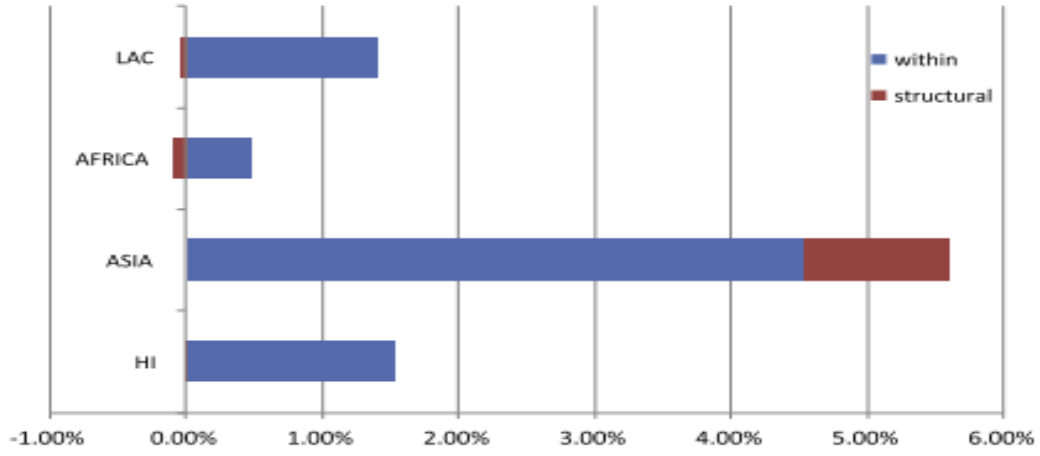
Source: Author's calculations on data from ILO, 2020, WDI, 2021 and AfDB, 2019

Data also show a decline in value of oil exports (fig. 4.8b) and an increase in the value of non-oil exports (fig. 4.8d). Splitting the data by regions, we however notice that this trend is mainly due to South Africa's performance. The region alone accounts for roughly half of the total exports of the continent. However, also the other regions are showing signs of increase in non-oil exports and this can be considered as a signal that African countries are slowly trying to diversify their export baskets, or at least to gradually reduce the dependence of their economies from the exports of oil.

Even if African countries seem to have opened up their economies and have been more engaged in the international market, this performance seems to be still very fragile, probably because it appears to reflect commodity boom-bust cycles and to be still entrapped in the trade of primary products. Moreover, the continent's growth resurgence is highly associated with the mineral and oil price booms, explaining why, since the 2000s, sub-Saharan Africa has experienced a growth-inducing structural change that has not been manufacturing-led.

As we have seen (see chapter 2), several authors argue that growth-enhancing structural change should arise from the reallocation of resources from traditional low-productivity activities to modern high-productivity ones both within and across sectors (McMillan & Rodrik, 2011; Aryeetey & Moyo, 2012; Page, 2018). Unlike Asian countries, Latin America and Africa have experienced productivity-reducing structural changes from 1990–to 2005 (McMillan & Rodrik, 2011). In line with the trends that have been highlighted by the data analysis provided in the previous part of this section, the structural change in Africa was generally productivity reducing, with labor directly moving out of agriculture to service and also to the informal sectors, delivering static gains but dynamic losses (De Vries et al., 2015; Mcmillan & Harttgen, 2014). McMillan and Rodrik (2011) call such a trend **"productivity-reducing structural change".** McMillan et al. (2014) show this dynamic lose in Africa in comparison with other regions (see figure 4.9).

Figure 4.9 - Productivity growth decomposition by country group, 1990–1999



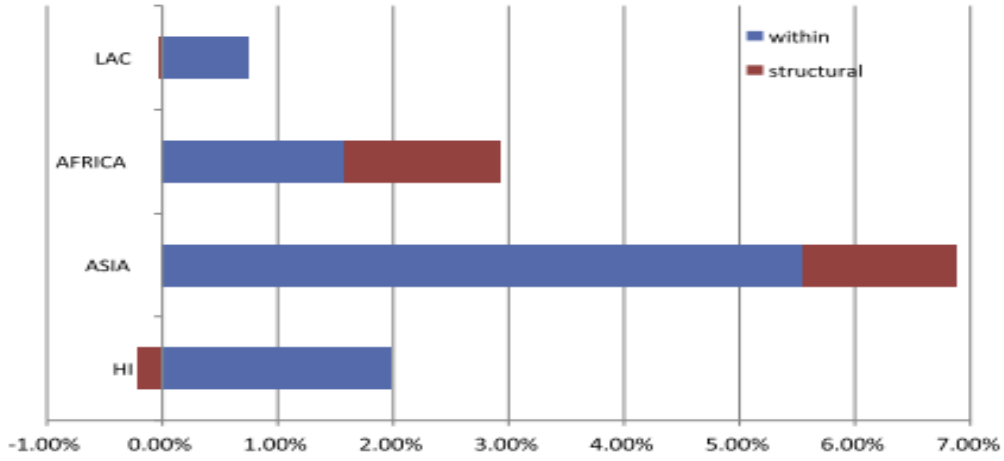
Source: McMillan et al. (2014)

The negative dynamic effect of structural change since the 1990s mainly reflects a rapid productivity growth in agriculture. As surplus labor leaves agriculture, the productivity growth in the sector rises; however, if this growth is more rapid than in expanding sectors (service sector), the dynamic term turns negative. As a result, African economies are still characterized by fragile informal activities instead of gradually transforming themselves into formal activities of productive assets and capacities.

However, since the 1990s, Africa has engaged itself in structural change, mainly triggered by the rising urbanization and demographic transition, and thus poverty has been falling consistently (Kelbore, 2015; Cadot, 2016). Furthermore, trade openness and structural change have begun playing an essential role in poverty reduction thanks to the expansion of the private sector and of the infrastructural system (Kelbore, 2015; Page, 2012a).

McMillan, Rodrik, and Verduzco-Gallo (2014) argue that since 2000 there has been a convergence in Africa from a growth-reducing structural change to a growth-enhancing structural change (see also McMillan, 2013). On average, structural change has contributed to 40% of the total annual post- 2000 growth rate, or, more specifically, to 0.87 percentage points of the 2.18% of growth rate in Africa (McMillan, 2013; Rodrik, 2013). Indeed, the aggregate labor productivity growth increased from 1.1 percentage points per year during the 1990s to 2.6 since 2000 (De Vries et al., 2015). The decomposition of productivity growth in Africa and other regions also improved after 2000 (figure 4.10).

Figure 4.10 - Productivity growth decomposition by country group, after 2000



Source: McMillan et al. 2014

Unlike the 1990s, which were characterized by a structural adjustment with meager growth rates, the post-2000 growth acceleration period was partially fueled by the commodity and resource boom (De Vries et al., 2015; Cadot et al., 2016; Geda, 2018; Busse et al., 2019). Such booms also accelerated the reallocation of labor into services, particularly market and distribution services. This reallocation happened with above-average productivity levels but below-average productivity growth (Rodrik, 2013b) and was, thus, not necessarily associated with an increase in aggregate productivity, while the marginal productivity of additional workers in the market services was below that of existing activities. The shift of labor to business services and market services with below-average productivity growth indicates that the dynamic effects of the structural change were negative after 1990 (De Vries et al., 2015). The following section provides a more detailed analysis of the paths to follow to ensure successful structural change in Africa.

4.5 Policy tracks for structural change in Africa

While they should benefit from both their internal and external demand, African countries' continued growth relies on the resource sector and related price booms in the global market (Rodrik, 2013). However, neither of these are assured in Africa, mainly due to a weak correspondence between market liberalization, institutions, and structural change (Rodrik, 2013). McCaig et al. (2013) suggest that trade liberalization triggered a notable rise in trade flows, accompanied by employment creation in retail and wholesale services. This expansion of the service sector by itself is not necessarily harmful to structural change and economic growth if there is a sufficient level of fundamental capabilities, institutional quality, and human & physical capital accumulation that can transform those services into sectors with higher productivity. However, this does not happen at the early stage of industrialization in which African countries reside. It typically happens at the later stage of development, after industrialization reaches its peak as an engine of economic growth.

This poses a concern on an alternative development path for African countries, suggesting that inter-sectoral structural change should be considered in the future. Yet, whatever path they choose to follow, the development process in Africa will have to occur in a difficult way, mainly through the accumulation of human capital and skills and advancements

in the quality of institutions and governance (Rodrik, 2013). Based on these premises, the following section forwards some policy tracks to foster structural change in Africa.

4.5.1 Pro Service Sector track

Rodrik (2013) argues that only through the manufacturing sector can countries achieve productivity convergence, given the low-level productivity, weak linkage, slow technological advancements in other sectors. However, recent studies argue that the rapidly expanding trade in services present optimistic grounds regarding the role of services in enhancing structural change in Africa (Cadot et al., 2016).

In this regard, the question is: is it possible to envision a development path that skips the industrialization step? Especially a path in which resources are shifting directly from agriculture to services? More specifically, can Africa develop and converge with the advanced economies without going through the phase of industrialization? There are some scholars who are optimistic about the role of services in Africa's structural change (Cadot et al., 2016). For instance, Loungani et al. (2017) suggest a unique development path in which African countries should still have development prospects through the services sector (Dihel & Goswani, 2016; Ghani & O'Connell, 2016).

African countries have opportunities to embark upon an "unconventional development path" through services-led structural change promoted by the ICT revolution. In this regard, Africa is making some advancements in innovative and technology-based services, for instance, by stimulating the extension of mobile banking and ATM services (Cadot et al., 2016). However, Rodrik (2016) examines at least two reasons why a services-driven convergence is not reliable. First, business services such as call centers demand skilled manpower. Even the more traditional services such as hotel and tourism sectors have limited potential in this regard.

Second, Rodrik (2016) argues that contrary to manufacturing, productivity in services is low and advances at a slow pace. According to Rodruk (2016), high productivity services, such as business services and the financial sector, are skill-intensive and hence ill-suited to the poor countries' factor endowments. Furthermore, tradable services which can absorb more labor, such as tourism, have typically generated limited linkages to other sectors and have not contributed much to the production and export diversification and hence growth. In this regard,

Nicet and Asse (2021) examine the role of different sectors on growth in Africa and show that the services sector, which remains highly specialized in low-skilled labor-intensive services, generates limited spillover effects on the income level of African countries.

By contrast, Ghani and O'Connell (2016) argue that the service sector can offer an alternative structural change paradigm for African countries and provide evidence of labor productivity growth convergence in both manufacturing and services, and convergence is faster in the latter. They also show the manufacturing sectors' capacity to absorb labor is contracting over time, while services are more dynamic and generate more jobs even at the earlier stage of development. They also claim that African nations may ensure development through the rapidly expanding services sector, which serves as a channel to reap the benefits of globalization and improves access to technology and innovation. Dihel and Grover (2016) show a booming trade in formal and informal services across Africa, with substantial contributions to GDP growth, poverty reduction, job creation, and gender equality.

Because services are intermediate inputs for the production of other services and goods, they play a significant role in reallocating resources from low- to high-productivity activities and enhancing productivity growth through the spillover effect. Services also provide an opportunity to expand the export basket through diversification. More generally, the services sector appears to be crucial for the participation of African countries in regional and global value chains by serving as intermediate inputs and participating in agribusiness and apparel GVCs (Dihel and Grover (2016).

These arguments indicate that policies to promote the development of tradable services should be considered, especially by managing the weak linkages economies. For instance, low productivity non-tradable sectors, hindering the expansion of other tradable sectors, particularly those downstream, should be transformed into something supportive of the rest of the economy (Jones, 2011; Kremer, 1993; Ugarte, 2012).

The inadequate energy sector in African countries and the inadequate financial sector development can have economy-wide deterrent effects, particularly on the crucial sectors that drive structural change (Cadot et al., 2016; Rodrik, 2013). Non-traditional agricultural activities such as horticulture, aquaculture, and floriculture could adequately be intermediate steps to move out of traditional farm products. Page (2018) suggests that new technologies have recently produced emerging services and agro-industries, including horticulture which he calls "industries without smokestacks," claiming that they share many similar characteristics with manufacturing. He also claims that these sectors have many similar characteristics to

manufacturing since they are tradable and can absorb a considerable number of low and moderately skilled labor with a high value-added per worker. These sectors can be promoted further by improving the investment climate, building the capacity to diversify export, and promoting agro-industries and agglomerations to create linkage with other sectors.

4.5.2 Pro agricultural productivity track

Recent studies highlight the complementarity between the productivity of agriculture and industrialization (Paulo & De Souza 2015). According to these studies, productive and innovative agriculture is required to generate surplus production and savings that drive modernization, urbanization, and industrialization (Timmer et al., 2012; Nicet, 2020). This proposition is in line with the position according to which low agricultural productivity pushes resources into more productive sectors, particularly into the manufacturing sector, implying an inverse relationship between low productivity in agriculture and structural change (Kuznets 1971; Chenery and Syrquin 1989; Syrquin 1984, 2007).

The view that higher productivity in agriculture drives industrialization is mostly validated in developed countries. In contrast, some studies find a negative and significant relationship for developing countries, where any advancement in agricultural productivity hampers structural change because it discourages agents from developing new products and engaging in entrepreneurial activities in manufacturing (Nicet, 2020).

This does not seem to be the case in some regions like Africa, wherein 2014, the employment shares in agriculture were more than 60% (Page, 2018), and where there is largely unutilized potential for prospective productivity growth in agriculture and structural change (Busse et al., 2019). According to Busse et al. (2019), these countries could, first of all, improve agricultural labor productivity. Agricultural productivity growth can, in fact, serve as a crucial factor in stimulating growth by enhancing growth in nonagricultural sectors (Nicet, 2020). It can also facilitate poverty reduction by increasing the income of a large proportion of the population in poverty (Dollar and Kraay 2002). By enhancing agricultural productivity, African countries could facilitate structural change and encourage labor reallocation from agriculture to high-productivity modern sectors to advance the overall economic growth (Busse et al., 2019).

Agriculture-led growth suggests that countries would trade their agricultural surplus on the global markets to facilitate a gradual diversification of their export basket. In many African countries, agricultural diversification seems to be hampered by many of the barriers that are

also hindering manufacturing, such as a poor business climate and macroeconomic instabilities (Golub and Hayat, 2014). Further, agriculture has specific difficulties that governments need to fix, such as input provision, mechanization, ensuring secure land rights, and standard setting for productions (Rodrik, 2014). With less trade and market constraints and more capital and technology-intensive farming, the enhancement in agricultural productivity may accelerate structural change.

4.5.3 Pro Export Diversification Track

The lack of economic diversification contributes to the slow and limited structural change in most African countries (UNECA, 2016; Totouom et al., 2019; Busse et al., 2019). Indeed, African countries suffer from a lack of export diversification, mainly due to their dependence on natural resources export, which is highly vulnerable in terms of trade and exchange rate appreciation issues (Cadot et al., 2016). In turn, declining terms of trade increase the cost of using factor input in new sectors and hence creates export concentration (Elhiraika & Mbate, 2014). Furthermore, exchange rate policies, especially the overvaluation of currencies, inflate the export prices, undermine the export sectors' competitiveness, and deter export diversification. Other factors related to policies, institutions, R & D, technology, competitiveness, human capital, infrastructure also determines export diversification (Elhiraika & Mbate, 2014).

Advocates of export diversification forwarded at least three channels through which it can promote structural change and economic growth. First, diversification requires increased investment in various types and levels of economic activities, especially in domestic production structures and capabilities (Elhiraika & Mbate, 2014). In this way, countries can mitigate the adverse effects of variations in terms of trade and instabilities in export price and demand by reducing countries' exposure to external shocks (Edwards, 2009). Second, export diversification can serve as a mechanism to distribute natural resource-based revenues to other supplementary and complementary sectors (Page, 2008; Page & Tarp, 2019). Third, export diversification is generally related to reduced economic shocks and fluctuations in export prices and foreign exchange revenues, improved quality of manufactured products, acceleration of value addition initiatives, employment rates, and increases in GDP (Alaya, 2012; Osakwe, 2007).

According to Acemoglu & Zilibotti (1997), at lower levels of development, obstacles that limit diversification opportunities are capital scarcity and the indivisibility of investment projects. As domestic investment increases, export concentration decreases (Parteka & Tamberi, 2013). Therefore, investment, in particular by the private sector, is an essential driver of export diversification due to its contribution to productivity growth, particularly in new activities and unexploited sectors (Elhiraika & Mbate, 2014).

Similarly, the accumulation of human capital is a prerequisite for advancement in technology and boosting innovation (Hausmann & Klinger, 2006). Specifically, to increase diversification in manufactured goods that are mainly knowledge-based, human skills and capabilities are highly crucial (Agosin et al., 2012). Furthermore, the production of new and high-value-added products requires R&D, and human capabilities are crucial in exploring the quality and yet affordable products and efficient production strategies (Samuel & Aram, 2016).

Institutional arrangements and governance structures such as facilitation of transactions, secure property rights, suitable business climate are pre-conditions to promote diversification (Djankov et al., 2002; Elhiraika & Mbate, 2014; OECD, 2011). The robustness and reliability of institutions determine the level of factors such as market rigidities, over-regulation, corruption, and political stability, which affect entrepreneurial and innovative activities. Institutions that foster regional integration are also key facilitators of export diversification (Elhiraika & Mbate, 2014). Institutions can also foster regional economic integration in intra-African investment and trade relations through cross-border entrepreneurship. In this way, African countries can strengthen their economies and complement each other's weaknesses; for instance, the inauguration of the African Continental Free Trade Area (ACFTA) could help increase intra-Africa trade. Regional integration experiences like this also play a crucial role in aligning the procedure of customs and in the facilitation of the cross-border movement of individuals, goods, and services.

Nowadays, there are more extensive technological advancements in manufacturing than in the past, transforming the sector into more skill and capital-intensive, decreasing the opportunities for developing countries in manufacturing and the degree of labor absorption in the sector (Rodrik, 2013).

Hence, Africa's alternative opportunities are the increasing demand for low-cost labor and suppliers. Baldwin (2011) has underlined the role of the expansion of global supply chains, "globalization's second unbundling," in facilitating the expansion of industries from developed countries to developing countries, expanding the manufacturing production and export of the

host country despite their small domestic market (Rodrik, 2013; Haraguchi et al., 2019). This also has positive spillover effects by reducing the technological gap, promoting the adoption of new technology, and developing high-productivity jobs, as recently pointed out by Rodrik (2013). Another opportunity for developing countries to diversify their export baskets can be to take advantage of global production networks: the ongoing fragmentation of global production and value chains might allow African nations to strategically choose to specialize in particular stages of production instead of an extensive investment in building the entire industry and sector domestically (Baldwin, 2016; Haraguchi et al., 2019).

4.6.4 Pro Industrial Policy Track

The nonlinear industrial policies in Africa, starting from the import substitution strategy in the 1960s, later followed by the export promotion strategies in the 1970s and 1980s, and then SAPs that were market-oriented strategies in the 1990s are accountable for the disappointing outcomes today (Samouel & Aram, 2016). Unlike the experience of today's advanced economies, the transitions from one strategy to another did not contribute to industrialization through economic structure transformations. The main issue is that African countries went from one extreme of state-led development to another extreme of market-led full liberalization, leading to an economic failure that persists and keeps Africa as the least industrialized region in the world (Aryeetey and Moyo, 2012). This is because African countries could not exploit the full potential of their human capital accumulation and institutional buildings on the one hand, and they failed to diversify their economies, particularly their industrial production and exports on the other hand.

One reason is that human capital and institutions demand a wide range of reforms and investments that are both highly context and production-specific and complementary and supplementary to each other (Rodrik, 2013). Context- specificity implies that the importation of institutions is not advantageous. Instead, local knowledge, experimentation, and expertise are required to get economic systems to harmonize and work well together. Successful economic and institutional reforms consist of sound economic principles involving local constraints, capabilities, and opportunities. A certain level of policy experimentation is also necessary to discover what will work in a particular place (Rodrik, 2005). Therefore, institutional reforms should be sufficiently embedded in the existing institutional and political contexts. Reforms also need to be flexible and dynamically adjusted over time to strengthen

the institutional underpinning of market economies (Rodrik, 2004). There is also a need for complementarities to be promoted by means of policies investing in horizontal and vertical linkages (see Rodrik 2013a).

Until countries reach a certain threshold in terms of income, investments in human capital and institutions produce at best moderate growth. In this regard, the recent growth in Latin America and Africa can be interpreted as an eventual payoff to enhancements in macroeconomic stability on the one hand and investments in education and governance that governments made in the previous years on the other hand (McMillan, 2013). In general, due to the peculiar features of their economies' structure, African nations have experienced more difficulties and an unusual structural change, which bypassed the manufacturing sector. This was due to the government's failure to address the 'trade-off' between macroeconomic stability on one side and achieving sustainable economic development on the other side.

As a result, African countries have endeavored to be more pragmatic in pursuing industrial development in the last two decades. Policymakers have begun to realize that the approach to industrial development lies somewhere in the middle of the formerly pursued strategies. Thus, in addition to broader policies intended to improve economic performance, many countries have also pursued specific institutional reforms that promote industrial development, including reforms in the property rights arrangements, contract enforcing legal systems, and improving the business environment. Furthermore, several countries implanted export-processing zones (SEZ) and improved their financial institutions to promote industries. For the years to come, African governments need to be clear with their industrial development policies, and various contextual policy instruments are required to ensure industrialization.

Chapter five

INSTITUTIONS AND STRUCTURAL CHANGE IN AFRICA

5.1 Introduction

This chapter aims to empirically investigate the interrelation between institutional quality and structural change in Africa. Structural change is often studied within the framework of the three-sector hypothesis, consisting of agriculture, manufacturing, and services (see Herrendorf et al. 2013, 2014; Dabla-Norris et al. 2013). In many cases, structural change is measured in this framework by examining the trend of the GDP share of industrial value-added (see Imbs and Wacziarg, 2003; Samoul & Aram, 2016; Totouom et al., 2019). The industry category includes manufacturing, construction, mining, gas, electricity, and water sectors and comprises the net output of these intermediate inputs (Jiha and Afrin, 2017; Alagidede et al., 2020). However, as already stated before (Chapter 4, paragraph 4,4), this classification in Africa is quite tricky, since half of the total industrial sector value-added and exports are concentrated in the mining and quarrying, and construction sectors (Jiha & Afrin, 2017; Nicet, 2020; Nissanke, 2019; Signé & Johnson, 2018; Totouom et al., 2019).

At the same time, as already stated previously in (Chapter 5, paragraph 5.2), Africa is also undergoing a decline in terms of manufacturing shares (i.e., premature de-industrialization). Due to this divergent trend of growth among manufacturing and non-manufacturing on the one hand and the greater importance of manufacturing to foster structural change and sustainable growth on the other hand (as it is extensively illustrated in chapter 3, paragraph 3.4.3), this chapter focuses on the manufacturing sector. Empirically, three main measures are used to measure manufacturing relevance in the economy: the GDP share of manufacturing value added (% GDP) (see Mensah et al., 2016; Nicet, 2020; Samouel & Aram., 2016), the manufacturing share of employment (see Nguimkeu & Zeufack, 2019) and manufacturing export (see Edjigu and Naud'e, 2019).

Examining the manufacturing sector from these three perspectives is important due to two major reasons. The first is to capture the multidimensional trends of the manufacturing sector, as well as to explore the relation of these dimensions also with the various aspects of

institutional quality in Africa. The second is the recent debate on whether African countries have been de-industrializing or not. While some scholars like Rodrik (2016) claim that Africa has indeed been de-industrializing, other scholars such as (Nguimkeu & Zeufack, 2019; Diao et al. 2018, and Edjigu & Naud'e, 2019) claims that Africa did not industrialize in terms of employment and export, while they have been growing in terms of manufacturing value-added. Based on Tregenna's (2011) proposition that in order to talk of de-industrialization, the shares in both employment and GDP need to decline, these authors reject the claim of de-industrialization in Africa. Based on these controversies, the previous chapter (paragraph 4.4) examines the trend of each dimension of manufacturing and finds that Africa has indeed been de-industrializing in terms of both value-added and employment, while exports start rising only after 2013.

As found in chapter 4, paragraph 4.2. and 4.4 premature de-industrialization trends in Africa are confirmed by a correspondent rise in the low value-added service sector, and it is associated with a whole range of downside phenomena, such as premature urbanization in consumption cities (Gollin et al., 2016 also see chapter 4, paragraph 4.4) and the Dutch disease effect or the natural resource curse (Corden & Neary, 1982; Davis, 1995; Barrows, 2018; DeKorne, 2011; Busse et al., 2019; Naudé, 2019; Nicet, 2020; Totouom et al., 2019; Dabla-Norris et al.; 2013; MacMillan & Rodrik,2011; Hausmann & Rodrik,2003, also see chapter 3, 3.4.4).

Previous parts of this work (chapter 4, paragraph 4.6) have been also highlighted the weaknesses and inadequacies of industrial policies and institutional quality in the continent. On the contrary, strong, adequate, and capable institutions are needed for the development of manufacturing and for trade liberalization and openness to have the desired effect on growth and structural change, as well as to promote domestic investment and enable local entrepreneurs to prepare themselves competitive and take up the global market's opportunities (Cadot et al., 2017; McMillan et al., 2014, 2017; Mensah et al., 2016; Mijiyawa, 2017; Mold, 2015; Rodrik, 2001, 2013d, 2013c, 2013b; Samouel & Aram, 2016). So far, empirical studies aiming at addressing the link between institutional quality and structural change in Africa found contrasting results.

One strand of literature found no significant impact of institutions on industrialization (Guadagno, 2016; Mensah et al., 2016; Samouel & Aram, 2016). Another strand of literature indicates the significant role of institutions in the industrialization process (Anaman and Osei-Amponsah, 2009; Haraguchi et al., 2019; Totouom et al., 2019). However, these studies do not

single out the role of institutions to examine the direct relationship between structural change; instead, they treat them as one of the other determinants of industrialization in Africa, and they also ignore the multidimensional role of institutions. In this regard, as far as the knowledge of the researcher is concerned, there have only been three studies that emphasize the direct relationship between institutions and the manufacturing sector in Africa, namely Carraro & Karfakis (2018), Totouom, Kaffo & Sunjo (2019) and Nicet (2020). respectively. The first study by Carraro & Karfakis (2018) focuses on 11 sub-Saharan countries, using the IV polity Index, Economic Freedom Index, and the African Sector database for the period 1990-2010; they examined the impact of institutional quality on both within and between sectorial productivity of the three sectors. They employed system-GMM methodology, and their findings suggest that providing a stable macroeconomic environment, improving the legal system, and freedom to exchange across borders promote industrialization in sub-Saharan African nations.

The second study by Totouom, Kaffo & Sunjo (2019) focuses on 46 sub-Saharan countries, using World Governance Indicators (WGI) for the period 1997-2016; they investigated the impact of institutions on the manufacturing sector. They also employed system-GMM methodology, and their finding suggests a positive impact of institutions on industrialization in sub-Saharan African countries. Finally, the third study by Nicet (2020) has a wider scope than the other two due to its inclusion of other developing countries in the study. Data on 74 developing countries from 1984 to 2013 were used for two subsamples, 27 sub-Saharan African countries and 47 other developing counties. The author used the panel fixed effect model to investigate the impact of the International Country Risk Guide's political risk ratings on the manufacturing sector for both sub-samples in the context of globalization and find a significant and positive impact of the institutional quality on structural change.

The current study departs from these studies in three ways. First, based on the African Development Bank regional classification (ADB), it includes 40 member countries in all five regions of Africa (North, South, West, East, and Central) for the period 2000-2019. Second, it uses composite indexes that are built using Worldwide Governance Indicators (WGIs) to capture the multidimensional aspects of institutional quality and their relationship with the manufacturing sector in Africa. Third, it uses three measurements of manufacturing: the GDP share of manufacturing, manufacturing employment, and manufacturing export within the five regions of Africa: North, East, Central, South, and West.

5.2 Methodology

5.2.1. Variable Descriptions and Data Sources

For the purpose of empirically analyzing the relationship between institutional quality and structural change, this chapter uses unbalanced panel data on 40 African countries, listed in Appendix (Table A1), over the period 2000-2019. Altogether, these countries hold more than 85 percent of the African population and 90 percent of its GDP. The period 2000-2019 is selected because the year 2000 is when the growing resurgence and growth-enhancing structural change in Africa are observed (as it is illustrated in chapter 4, paragraph 4.4, see also McMillan et al., 2014). Data for the main variables of interest, i.e., institutional quality indicators, are collected from the World Governance Indicators[1]

As for the three dimensions of manufacturing used, they have been collected as follows. Data for manufacturing employment is collected from the ILO 2020 dataset[2], by summing up the number of workers employed in all manufacturing activities. Data for manufacturing value-added are obtained from World Development Indicators[3], and is measured as the GDP share of the net output in manufacturing, after adding all outputs and subtracting intermediate inputs. Also data for manufacturing export come from World Development Indicators, and is measured as the merchandise share of chemicals, machinery and transport equipment, basic manufactures, and miscellaneous manufactured goods export.

Several other determinants of structural change in Africa are also included in the empirical model (see paragraph. 5.2.1). Data for GDP per capita, domestic credit, and trade openness is taken from World Development Indicators, while data for urbanization, FDI, and the dummy for oil export is collected from the African Development Bank[4]. Finally, data for export concentration, human capital, transportation, and energy is gathered from United Nations Conference on Trade and Development[5].

[1] World Bank World Governance Indicators (WGI)
[2] ILOSTAT 2020 Dataset
[3] World Bank World Development Indicators (WDI)
[4] COMSTAT AfDB Socio Economic Database1960-2019
[5] UNCTADSTAT

5.2.2. Institutional Quality Indicators

Since the notion of institutions is quite complex, possible measurements of institutional quality have often relied on a weighted average of social, political, and macroeconomic variables (Nifo & Vecchione, 2015). These variables usually include, among the others, the degree of corruption, the security of property rights, the political stability, the certainty of business climates, the existence of barriers to entry, the administrative capacity of local and regional governments, the accountability and transparency of governments, the check and balance among the various branches of government, and the level of the endowment of social and economic infrastructures and so on (Aziz, 2018; Boschini et al., 2013; Chong & Calderón, 2000; Nicet, 2020).

Among the databases collecting information about institutions and their quality, the World Governance Indicators (WGI), proposed by Kaufmann et al. (2011), is one of the most important and comprehensive global survey of governance (Karimi & Daiari, 2018; McFerson, 2009) indices, conceived to measure the quality of governance in 213 countries since 1996. It is structured into six dimensions that concern some major quality characteristics of a national system (illustrated in table 5.1):

i) *Voice and accountability (VA)*, that measures the degree of citizens' participation in selecting their government and, freedom of expression, associations, and the existence of free media
ii) *Political stability and absence of violence and terrorism (PV)*, that captures the likelihood of the government to be destabilized and overthrown by violent or unconstitutional ways, including politically motivated violence and terrorism.
iii) *Government effectiveness (GE)*, that measures the quality of policy formulation and implementation, the credibility of the commitment of governments to such policies, the quality of civil and public services, and the extent to which they are free from political pressures.
iv) *Regulatory quality (QL)*, that captures the ability of the government to formulate and execute sound policies that enable and facilitate private sector development.
v) *Rule of law (RL)*, that measures the level of agents' trust in and respect for the rule of the society, and in particular measures the security of property right, the quality of contract enforcement, functioning of the police and the court, and the likelihood of crime and violence.

vi) *Control and corruption (CC)*, that captures the degree to which public power is exploited for private gains and the manipulation of the government by powerful elites and private interest groups.

Table 5.1 - Description of the six World Governance Indicators

Variable	Source	Description
VA	WGI	The level of citizens participation in politics, freedom of expression, associations, and media
PV	WGI	The likelihood of political violence and instability, including terrorism
GE	WGI	The quality of civil and public services, and the degree of their independence from political pressures
RQ	WGI	Governments' ability to formulate and execute sound policies
CC	WGI	The degree to which public power is used for private interest
RL	WGI	The quality of property rights, contract enforcement, the police, and the courts

Source: World Bank World Governance Indicators

Based on these different dimensions of institutional quality collected from WGI, some indices of institutional qualities are built, based on the simple average of some of the individual WGI indicators. The use of composite indicators is justified, in this framework, by the necessity to capture the multidimensional role of institutional quality.

Table 5.2 reports the correlation among the six WGI. A high correlation emerges among four indicators: CC, RL, RQ, and GE. These four indicators, indeed, all allude to a similar dimension of institutional quality, i.e., how governments are effective and efficient. The other two indicators, PV, and VA, relate to different elements related to institutions: on one hand, the degree of stability, and, on the other, the degree of democracy and participation.

Table 5.2 - Correlation among the six World Governance Indicators

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) PV	1.000					
(2) VA	0.588	1.000				
	(0.000)					
(3) GE	0.617	0.626	1.000			

	(0.000)	(0.000)				
(4) CC	0.658	0.647	0.848	1.000		
	(0.000)	(0.000)	(0.000)			
(5) RQ	0.633	0.701	0.874	0.797	1.000	
	(0.000)	(0.000)	(0.000)	(0.000)		
(6) RL	0.730	0.717	0.889	0.872	0.853	1.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	

Source: author's elaboration

In other words, indicators 3 to 6 are all referred to a homogeneous sphere of institutional functioning, and they also present a technical limit to their inclusion altogether in a composite index, related to the high degree of correlation among the four measures. Therefore, in order to generate a measure of institutional quality which is balanced among the various dimensions, this empirical exercise proceeds as follows: four composite indices are built; each of them including 3 indicators. The first two indicators are, for each indicator, with PV, and VA. The third indicator is, each time, one of the highly correlated indicators measuring internal functioning and efficiency of the government (*CC, RA, QL, and CC*). Hence, each time one of the variables identify the dimensions of internal functioning of government is picked in the composite indicator, together with *PV* and *VA*.

Before building the composite indices, the six Governance Indicators, originally scaled from - 2.5 to + 2.5, are normalized via *minmax* normalization to obtain positive values ranging from 0 to 1. The data is normalized based on the following formula:

$$\mathrm{idg} = \frac{id_{\mathrm{i}} - \min(id_{\mathrm{i}})}{\max\ (idg) - \min(idg)}$$

After normalization, the three indicators are summarized taking their and simple average. Then, each composite index is multiplied by 100 to make them comparable with other dependent and control variables in the model. Among the newly build composite indicators, the combination of VA, PV, and RL is used as the main measurement of institutional quality. Such choice is due to the high relevance of what RL measures: the quality of contract enforcement, property rights, functioning of the police and the courts have been underlined by previous literature as widely used measures the quality of institutions (Acemoglu et al., 2001, 2005, 2012; Acemoglu & Robinson, 2008a, 2002; North, 1990, 1994, 2009). The other three composite indices are still highly correlated with *VA_PV_RL* (Table 5.3) and are used for robustness checks. The related results are reported in the Appendix.

Table 5.3 - Correlation among the newly built composite indices of institutional quality

Variables	(1)	(2)	(3)	(4)
(1) VA_PS_GE	1.000			

(2) VA_PS_RL	0.990 (0.000)	1.000		
(3) VA_PS_CC	0.986 (0.000)	0.988 (0.000)	1.000	
(4) VA_PS_RQ	0.988 (0.000)	0.987 (0.000)	0.982 (0.000)	1.000

Source: author's elaboration

5.3. Model Estimation

The Ordinary Least Square (OLS) model is applied to empirically estimate the relationship between institutions and industrialization in Africa. OLS model estimates are recommended when variables are stationary and cointegrated (Bülow, 2015). Particularly, the dependent variables in the models are stationary and do not change significantly over time. In other words, there is stagnation in the trend of the dependent variables overtime. In order to check for non-stationarity in panel data, Dickey and Fuller (1981) and Ng and Perron (2001) tests are t widely used a unit root test. According to the results of the Augmented Dickey-Fuller Test (ADF), all the dependent variables in the models are stationary and have a trend of stagnation overtime (see Table 5.4). In addition to the ADF test results, the scatter plots that shows the stagnating trends of the dependent variables are also reported in the Appendix (Figure A1, A2 and A3).

Table 5.4 - Augmented Dickey-Fuller Test for stationarity check on dependent variables

Augmented Dickey-Fuller Test	Manufacturing Value Added	Manufacturing Employment	Manufacturing Export
Level (ADF statistics)	-6.494	-5.386	-5.446
Level (Mackinnon p-value)	(0.000)	(0.000)	(0.000)
First Difference	-29.902	-28.08145	-28.768
(Mackinnon p-value)	(0.000)	(0.0000)	(0.000)
Second Difference	-15.352	-8.941	-15.560
(Mackinnon p-value)	(0.000)	(0.000)	(0.000)

Source: author's elaboration

This stationary nature of the dependent variables hinders the application of both Random (RE) and Fixed Effect models (Bülow, 2015). Therefore, the Pooled OLS with robust standard error are applied to account for heteroskedasticity.

Based on these premises, the model is stated as:

$$Y_i = \alpha_1 + \boldsymbol{\beta}_1 \boldsymbol{Inst\_index}_i + \boldsymbol{\beta}_2 \boldsymbol{X}_i + \varepsilon_i \quad [1]$$

Where Y_i is the dependent variable. The three dependent variables analysed are formulated as follows: the logarithm of manufacturing valued added (% GDP), the logarithm the employment share of manufacturing and the logarithm manufacturing export (% merchandise export).
$\boldsymbol{Inst\_index}$ is the main variable of interest: the index built as a composite index of VA_PS_RL as main indicator of institutional quality, and in the forms of robustness checks (VA_PS_GE, VA_PS_CC and VA_PS_RQ).

There is a strand of mainstream based literature emphasizing the importance of secure property rights and conducive business climate (Acemoglu et al., 2005; Acemoglu & Robinson, 2008a; North, 1990, 1994) on the one hand and there is another strand of literature focusing on the dynamic interdependence and the contextuality of institutions in countries production structure (Andreoni et al., 2019; Stiglitz, 2007. Chang, 2001, 2006, 2007b; Chang & Andreoni, 2019). The former assumes that the more secure property rights are, and the more conducive the business climate is the higher the quality of institutions. In contrast, the latter assume that this might not be true for all countries and all levels of development, at all times and here is a probability that too strong protections of property rights can be as disadvantageous as very weak ones, as they can end in protecting obsolete technologies and outmoded organizational structures. Whether a specific property right will have a positive or negative growth effect depends on changes in population, culture, technology, political ideologies, and power balance. The success or failure of institutions depends on the context and production specificity and political economy feasibility of certain institutional settings. This implies that institutions work because they complement and interact with other policies and institutions in a given place at a given time, and they can be absent in other places at a certain time.

Therefore, in this context, the effect of institutional quality, , on structural change might be both positive and negative depending on context of different regions.
$\boldsymbol{X}_{it}$ is the vector of control variables:

- GDP per capita ($\boldsymbol{lngdpc}$) is measured by the log of the ratio between gross domestic product and midyear population (constant 2010 US$). It is used to control the country's economic level. The expectation is that the higher the GDP per capita of a country, the larger the share of manufacturing. This is because higher-income levels offer more opportunities for manufacturing development, mainly in terms of increasing the purchasing power of consumers

and, hence the demand. The market size is a major determinant of the manufacturing sector, since manufacturing has income and price elasticity advantages with respect to the other sectors (Cantore et al., 2017; Marconi et al., 2016). Therefore, other things being equal, richer countries tend to have a greater share of manufacturing because the growth in internal demand causes expansion in the manufacturing sector (Samouel & Aram, 2016).

- Urbanization (***lnupg***) is measured by the log of the midyear population growth rate of urban areas. It is used to capture the relationship between urbanization and manufacturing. Theoretically, industrialization and urbanization go hand in hand because workers move from less productive agricultural activities to more productive industrial activities operating in urban centers (Kuznets, 1971, Chenery, 1986; Syrquin 1988; Marjanović, 2015). On the other hand, when urbanization is measured by the increasing proportion of the population purchasing non-tradable goods and services, this generates consumption cities which, in turn, discourage industrialization and result in "premature urbanization." Based on the examination undertaken in Chapter 4, the expectation is that there is a significant but negative relationship in the context of consumption cities. In contrast, if the results turns out to show positive relationship between urbanization and manufacturing, it means the two factors complement each other in the context of production cities.
- Domestic credit ***(lndcp)*** is measured as the GDP share of domestic credit to private. It indicates the the level and accessibility of financial resources, such as loans delivered to the private sector by financial institutions. It captures the level of countries' financial development. Strong financial systems encourage savings and hence investment decisions, particularly in manufacturing. In other words, financial institutions facilitate efficient allocation of resources which positively affects industrialization processes (Samouel & Aram, 2016), through the acceleration of capital accumulation and, hence, forms solid industrial foundations (Acemoglu and Zilibotti 1997). In contrast, financial system drawbacks are considered hinderances to the creation of entrepreneurial activities and structural change in developing countries (Alagidede et al., 2020). Therefore, a positive relationship with manufacturing indicates that financial development promotes industrialization, while a negative relationship can be interpreted as either the inadequate financial development is discouraging the expansions of manufacturing or is favoring other sectors such as services at the expense of manufacturing.
- Trade openness (***lntot***) is measured as the log of the GDP share of the sum of exports and imports of goods and services. It captures the level of trade openness and liberalization. There are two distinct strands of empirical and theoretical studies on trade openness, one

supporting and the other against globalization (Nicet, 2020), as stated in chapter 4, paragraph 4.5. According to the one identifying positive effect of globalization on structural change (Dollar & Kraay, 2004; Chang, Kaltani, & Loayza, 2009), the linkage between trade openness and manufacturing growth should be positive. On the contrary, the critics of globalization (Kelbore, 2015; Davis & Prachi, 2007; Bourguignon & Verdier, 2005; Muendler, 2010; Mahama & Gakpe, 2015) suggest that the negative relationship might be found.

- Export concentration index ($\boldsymbol{exc}$), that is the normalized Herfindahl-Hirschman index capturing the level of concentration of imports and exports of goods. The higher the country's product concentration, the less the development of its industrial sector (Nissanke, 2019; Nicet, 2020). The export concentration index is used in its log form.
- Oil export ($\boldsymbol{oex}$) is a dummy for oil exporters (1) and non-exporters (0). It is used to capture the impact of oil export on manufacturing. Both the export concentration index and the dummy for oil export are used to measure the degree of specialization of African countries in commodities and resources. The recent Africa's growth resurgence relied profoundly on primary commodity and resource export booms. This has narrowed the production base and strengthened export concentration, which in turn has increased its vulnerability to external shocks and hindered employment creation (De Vries et al., 2015; Cadot et al., 2016; Geda, 2018; Busse et al., 2019). The lack of economic diversification contributes to the slow and limited structural change in most African nations, largely due to countries higher reliance on natural resources export that is highly vulnerable in terms of trade and exchange rate appreciation issues (Cadot et al., 2016; Nicet, 2020; UNECA, 2016; Totouom et al., 2019; Busse et al.,2019), additionally undermining the competitiveness of the exports further hindering export diversification (Makhlouf & Mughal, 2013), all effects related to the "Dutch disease". Therefore, the expected relationship between export concentration and oil export with manufacturing is negative.
- FDI ($\boldsymbol{lnfdii}$), the log of the gross fixed capital share of foreign direct investment inflow. It is used to measure the impact of FDI on manufacturing. As international trade, FDI has an asymmetrical role in facilitating structural change. On the one hand, the flow of FDI, particularly in manufacturing, transfers capital, skills, innovation and technology, marketing and management techniques and then reinforcing the industrialization process for the host country (Samouel & Aram, 2016; Mijiyawa, 2017). On the other hand, in economies where there are less competitive domestic investors without appropriate protection, FDI can have a crowding-out effect and hence discourage and deter the manufacturing development. The

recent growth resurgence in Africa since 2000 is also accompanied by a modest increase in FDI, but that investment has been concentrated in mining and mineral sectors (Page, 2012). The expected relationship between manufacturing and FDI is, therefore, negative and significant due to the possible overcrowding out effect of FDI on the domestic manufacturing firms.

- Logarithm of Consumer Price Index ($\boldsymbol{lninf}$), measures the changes in the cost of average consumer goods and service. Due to the strong disruptive signaling effect of inflation, which increases the uncertainty of business climate, inflation has a negative impact on Africa's structural change (Cadot et al., 2016; Busse et al., 2019; Nicet, 2020).
- Human Capital ($\boldsymbol{hc}$) is an index of the expenditure on research activities and the number of researchers. It represents the level of human capital by capturing the education, skills and health status acquired by the population of a country. As discussed in chapter 4, paragraph 4.5 the higher the level of human capital, the greater the development in manufacturing. Therefore, a positive relationship between human capital and manufacturing is expected.
- Transportation ($\boldsymbol{tr}$) is an index measuring roads and railway capability and networks and air connectivity. It captures the transport system capability to take people, goods, and services from one place to another.
- Energy ($\boldsymbol{en}$) is an index of the composed of an access and usage of energy, and the renewability of energy sources and components in distribution and loses in distribution. Based on the literature reviewed in chapter 4, paragraph 4.5, enhancement in terms of infrastructures is expected to have a positive relationship, while its deteriorations are expected to cause a negative one.

In addition, ε is the error term of the model related to individual **i**. Finally, year dummies are included in the model.

The summary of all the variables included in the models are summarized in Table 5.5, while Table 5.6 presents the general summary statistics of all variables.

Table 5.5 - Variables and Data descriptions

Variables	Sources	Abbreviations	Descriptions	Expected sign
Dependent Variables				
Manufacturing Value Added (% of GDP)	WDI	lnmva	The net output of manufacturing sector after summing up all outputs and subtracting intermediate inputs.	
Manufacturing Employment (% of total employment)	ILO	lnme	The total number of employed in all manufacturing activities	
Manufacturing Export (% of merchandise export)	WDI	lnmex	It comprises export of chemicals, machinery and transport equipment, basic manufactures, and miscellaneous manufactured goods	
Independent Variables				
VA_PS_GE	Author's calculation based on data from WGI	VPG Index	A composite index built by an average of three institutional quality indicators	+/-
VA_PS_RL	Author's calculation based on data from WGI	VPR Index	A composite index built by an average of three institutional quality indicators	+/-
VA_PS_CC	Author's calculation based on data from WGI	VPC Index	A composite index built by an average of three institutional quality indicators	+/-
VA_PS_RQ	Author's calculation Based on data from WGI	VPQ Index	A composite index built by an average of three institutional quality indicators	+/-
Control Variables				
GDP Per Capita	WDI	lngdpc	It is gross domestic product divided by midyear population (constant 2010 US$)	+
Urbanization	AfDB	lnupg	It is the midyear population growth rate of areas defined as urban in each country	-
Domestic Credit	WDI	lndcp	Financial resources such as loans provided to the private sector by financial institutions	+/-
Trade Openness	WDI	lntot	It is the GDP share of sum of exports and imports of goods and services	-
Export Concentration	UNCTAD	exc	The normalized Herfindahl-Hirschman index of product concentration (transformed into its logarithmic form)	-
Oil Export Dummy	AfDB	oex	A dummy for oil exporters and non-exporters. Oil exporters are labeled by 1 and non-exporters 0	-
FDI	AfDB	lnfdii	The gross fixed capital formation shares of Foreign direct investment inflow	
Consumer Price Index	AfDB	lninf	Index of changes in the cost of consumer goods and service (2000=100)	-
Human Capital	UNCTAD	hc	Captures the skills, education, and health status acquired by population	+
Transportation	UNCTAD	tr	The capability of a transport system to take people, goods and services from one place to another.	+
Energy	UNCTAD	en	It measures the availability, sustainability, and efficiency of power sources	+

Sources: author's elaboration

* All variables except the indices are transformed into their log forms to minimize and normalize their larger numerical values and to avoid the likelihood of outliers. The non-linearized indices are within limited numerical boundaries (0-1).

Table 5.6 - Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Manufacturing Value Added	800	2.31	.597	-1.458	3.913
Manufacturing Employment	800	1.809	.753	-.436	3.043
Manufacturing Export	661	2.53	1.79	-9.575	4.567
GDP per capita	800	7.177	.98	5.272	9.398
Urbanization	795	1.224	.414	-1.466	2.447
Domestic Credit	800	2.732	.843	-.711	5.076
Trade Openness	800	4.122	.436	2.781	5.417
Export Concentration	800	.46	.219	.112	.961
Oil Export Dummy	800	.497	.5	0	1
FDI	766	2.282	1.331	-7.419	5.392
Consumer Price Index	800	5.306	.791	4.385	9.489
Human Capital	800	34.831	7.531	18.661	56.814
Transportation	800	10.648	3.009	4.002	21.245
Energy	800	20.003	6.651	5.607	59.212
VA_PS_GE	800	36.807	11.748	9.372	66.917
VA_PS_RL	800	37.085	12.024	9.23	66.948
VA_PS_CC	800	37.251	11.785	11.606	70.189
VA_PS_RQ	800	37.37	11.717	7.4	67.375

Source: author's elaboration

Table 5.7 - Pairwise correlation among dependent variables and control variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Manufacturing Value Added	1.000													
(2) Manufacturing Employment	0.317	1.000												
	(0.000)													
(3) Manufacturing Export	0.186	0.107	1.000											
	(0.000)	(0.006)												
(4) GDP per capita	0.087	0.410	0.127	1.000										
	(0.014)	(0.000)	(0.001)											
(5) Urbanization	-0.221	-0.414	-0.256	-0.439	1.000									
	(0.000)	(0.000)	(0.000)	(0.000)										
(6) Domestic Credit	0.191	0.296	0.298	0.456	-0.226	1.000								
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)									
(7) Trade Openness	0.005	0.224	0.184	0.430	-0.254	0.199	1.000							
	(0.890)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)								
(8) Export Concentration	-0.504	-0.263	-0.406	0.128	0.145	-0.429	0.059	1.000						
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.094)							
(9) Oil Export Dummy	0.073	0.187	-0.074	0.401	-0.167	0.129	0.107	-0.001	1.000					
	(0.039)	(0.000)	(0.057)	(0.000)	(0.000)	(0.000)	(0.002)	(0.988)						
(10) FDI	-0.042	0.069	0.058	0.128	-0.006	-0.061	0.349	-0.068	0.145	1.000				
	(0.243)	(0.055)	(0.145)	(0.000)	(0.858)	(0.093)	(0.000)	(0.060)	(0.000)					
(11) Consumer Price Index	-0.076	-0.291	-0.045	-0.050	0.218	-0.031	0.002	0.171	0.063	0.167	1.000			
	(0.031)	(0.000)	(0.248)	(0.155)	(0.000)	(0.383)	(0.949)	(0.000)	(0.074)	(0.000)				
(12) Human Capital	0.260	0.383	0.282	0.656	-0.471	0.628	0.241	-0.312	0.270	0.011	0.051	1.000		
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.759)	(0.146)			
(13) Transportation	0.007	0.099	0.305	0.298	-0.404	0.187	0.073	-0.049	-0.137	-0.203	0.022	0.443	1.000	
	(0.843)	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)	(0.038)	(0.163)	(0.000)	(0.000)	(0.541)	(0.000)		
(14) Energy	0.291	0.285	0.168	0.494	-0.469	0.346	0.284	-0.184	0.188	-0.001	-0.039	0.521	0.284	1.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.985)	(0.265)	(0.000)	(0.000)	

Sources: author's elaboration

5.4. Empirical results

Table 5.8 presents the OLS regressions results of manufacturing value-added, employment, and export without regional dummies. No significant relationship between institutions and manufacturing value-added and employment is observed, while institution quality seems to play a positive role for manufacturing export. Results for other institutional quality indices are reported in Appendix (Table A2, A3, A4).

GDP per capita has a statistically significant and positive association with manufacturing value-added and employment. This is in line with the standard economic theory, according to which as income increases and hence domestic market expands, the consumption of manufactured goods increases consequently. In other words, the higher the income people are earning, the more they are capable of purchasing and consuming manufactured goods. This is consistent with some studies (Nicet,2020; Carraro & Karfakis, 2018; Totouom et al., 2019; Samouel & Aram, 2016) finding a positive and significant relationship between manufacturing and GDP per capita also for the case of Africa., However, GDP per capita has a negative and significant relationship with manufacturing export. One possible explanation is that the smaller the domestic market (the poorer the people are), the higher the export level since producers look for opportunities abroad.

Urbanization has a negative and significant relationship with manufacturing value-added, employment, and export, mainly due to the direct movement of labor from the rural areas to urban service sectors. Therefore, the existence of consumption cities and the phenomenon of "premature urbanization" (Carraro & Karfakis, 2018; Mijiyawa, 2017) is confirmed in this case.

Domestic credit to the private sector has a negative and significant association with manufacturing value-added, while it has no significant relationship with employment and export. For the former case, one explanation for the negative relationship between domestic credit and manufacturing value-added can be the fast-growing private service sectors at the expense of manufacturing firms and the consequent shift of domestic credits and financial resources towards these service sectors rather than in the manufacturing sector. For the latter cases, the nature of the services to which much of the domestic credits are flowing in Africa, is less capable of generating more jobs in manufacturing and export, due to its weak linkage with the other sectors (Rodrik, 2016; Nicet and Asse, 2021).

Table 5.8 - Institutions and measurements of industrialization in Africa: without regional dummies

	Manufacturing Value Added (log)	Manufacturing Employment (log)	Manufacturing Export (log)
VA_PS_RL	0.002 (1.1)	0.003 (1.2)	0.054*** (6.6
GDP per capita	0.107*** (2.9)	0.257*** (4.5)	-0.227** (-2.5)
Urbanization	-0.158*** (-2.7)	-0.407*** (-6.1)	-0.856*** (-4.2)
Domestic credit	-0.174*** (-5.8)	-0.041 (-1.1)	0.044 (0.5)
Trade openness	-0.010 (-0.2)	0.081 (1.4)	0.196 (1.0)
Export Concentration	-1.461*** (-12.0)	-0.697*** (-4.3)	-2.961*** (-8.5)
Oil export dummy	0.042 (0.9)	0.079 (1.4)	-0.001 (-0.1)
FDI	-0.081*** (-6.0)	-0.015 (-0.8)	-0.034 (-0.6)
Consumer Price Index	0.087*** (3.1)	-0.147*** (-3.6)	-0.155 (-1.6)
Human Capital	0.004 (0.7)	0.004 (0.9)	-0.013 (-1.1)
Transportation	-0.044*** (-5.4)	-0.033*** (-4.0)	0.145*** (4.2)
Energy	0.013*** (4.7)	-0.003 (-0.8)	-0.020** (-2.0)
Constant	2.656*** (10.4)	1.540*** (4.4)	3.076*** (2.9)
Year Dummy	YES	YES	YES
Regional Dummy	NO	NO	NO
No. of Obs.	763	763	638
R-Squared	0.36	0.34	0.37
F Statistic	19.01	31.26	18.36

***,** and *denote statistical significance at the 1%, 5% and 10% levels, respectively. Pooled OLS regression with robust standard errors. Dummy variables for time are included. Dummy variables for regions are not included.

For the international trade, trade openness and the dummy for oil export have no relationship with manufacturing value-added, employment, and export, similarly to some other studies (Jha & Afrin, 2016; Mijiyawa, 2017).

Export concentration, instead, has a statistically significant and negative association with all measurements of manufacturing confirming the Dutch disease effect in Africa. This result aligns with Dabla-Norris et al. (2013), who find that a strong but negative effects of primary resource endowments on structural change in African countries. It also confirms the arguments

of Hausmann and Rodrik (2003) and MacMillan and Rodrik (2011) and who claim that it is difficult for countries to benefit from international trade and structural change when they strong specialize in primary resources; and when their rentier sector absorbs all available resources at the expense of other productive sectors.

FDI has a negative and significant relationship with manufacturing value-added, while it has no significant association with employment and export. The former result is supported by other studies such as Nicet (2020), who find a negative and significant association. This result also indicates the indirect crowding out effect of FDI in Africa's manufacturing.

The consumer price index has a positive and significant association with manufacturing value-added, implying that changes in the price of consumers' goods positively contribute to manufacturing value-added from the suppliers' side. However, it has a significant and negative relationship with employment, discouraging job creation in the manufacturing sector and hindering job opportunities for the fast-growing job demands in Africa. This is in line with the result of Nicet (2020), who find a negative and significant relationship between inflation and manufacturing. Finally, it doesn't have any relationship with export.

Transportation services have a negative and significant relation with manufacturing value-added and employment, while it has a positive relationship with export, implying that the type and the demand of transport services are highly related to the services or export goods - such as airways. On the other hand, the energy and electric power supply have a positive and significant association with manufacturing value-added and a negative relation with export. One explanation for the former can be the public good nature of electricity, making that all firms in all sectors can have access. Another explanation is that of the recent improvements in access to electricity in many African countries that are contributing to an increase in manufacturing value-added. The negative correlation with manufacturing export, on the other hand, could imply that the level of energy supplies is good enough to improve the manufacturing value-added but not sufficient enough to create a conducive environment for the diversification and sophistication of manufactured goods. The inadequacy of such infrastructure can hinder the export level in manufacturing.

Lastly, human capital seems to have no relationship with all measurements of manufacturing.

As noted earlier in the paragraph, institutions have no significant relation, especially for manufacturing value-added and employment. This is not an expected result, and one possible explanation can be intra-regional homogeneity and inter-regional heterogeneity of institutions which, if not taken into due account, can neutralize the impact of institutions when Africa is

taken as a whole, sweeping out the possible different regional effects. This is also supported by the literature reviewed in chapter 1 (paragraph 1.1, 1.2.1) and chapter 3 (3.2.3, 3.5) claiming that societies and countries with common norms, culture, and historical path have more similar trends of institutional development and change.

In order to explore whether this inter-regional heterogeneity existed, the Kruskal Walls test for endogeneity is applied on regional groups (Kruskal & Wallis, 1953) (see Table 5.9).

Table 5.9 - Kruskal Wallis tests for endogeneity

Kruskal Wallis tests for endogeneity (Homogeneity of institutions within regions)	Manufacturing Value Added Kruskal walls tests chi2(4)/Prob	Manufacturing Employment Kruskal walls tests chi2(4)/Prob	Manufacturing Export Kruskal walls tests chi2(4)/Prob
VA_PS_GE	241.263 (0.0001)	241.263 (0.0001)	241.263 (0.0001)
VA_PS_RL	254.347 (0.0001)	254.347 (0.0001)	254.347 (0.0001)
VA_PS_CC	270.614 (0.0001)	270.614 (0.0001)	270.614 (0.0001)
VA_PS_RQ	254.404 (0.0001)	254.404 (0.0001)	254.404 (0.0001)

Source: author's elaboration

The results of Kruskal Wallis test show that there is heterogeneity among regions for what regards institutional quality. This supports the need to include regional dummies in the model. The included regional dummies are: North, East, Central, South, and West Africa based on the classification of African Development Bank (AfDB). The chosen base category is North Africa, taken as reference given its higher GDP per capita performance (most of the countries are categorized under middle income countries and mostly presented with the middle east counties by the WB), while the other regions are mostly known as Sub-Saharan African countries with a lower income level. After the inclusion of regional dummies, a further step is taken by interacting the regional dummies with the indexes of institutional quality to observe the effect of institutions region by region. Accordingly, using North Africa as a base category, Table 5.10 presents the regression results with regional dummies, while Table 5.11 presents the results of the interaction terms between institutions and regional dummies and the effect of institutions in each region.

Table 5.10 presents the OLS regressions results of manufacturing value-added, employment an export with regional dummies. Results for other institutional quality indices are reported in Appendix (Table A5, A6 & A7). Table 5.11, instead, includes the interaction

between institutions and regional dummies using North Africa as a base region. Results for the other institutional quality indices is reported in Appendix (Table A8, A9 & A10).

As shown in Table 5.11, once regional differences and internal similarities are taken into account, institutions seem to have a positive and significant effect on most of the measurements of manufacturing.

First of all, this is true for North Africa – the base category – for which institutional quality seem to exert a positive impact on all the variables representing manufacturing. Once moving to the study of the interactions between regional dummies and the institutional quality index (whose general effect is calculated as summing up of all significant terms involved in the interaction), institutions also seem to play a positive role in the development of manufacturing. The exceptions are East Africa, where institutions have a negative effect on manufacturing value-added, and West Africa, where institutions have no effect on manufacturing employment. In particular for East Africa, there might be a number of factors explaining the weaker behavior of institutions, related in particular to ethnic fractionalization (Easterly and Levine, 1997; Englebert, 2000) and foreign aid dependency (Knack, 2000; Brautigam and Knack, 2004; Young and Sheehan, 2014; Wako, 2018).

Table 5.10 - Institutions and measurements of industrialization in Africa: Regional dummy included

	Manufacturing Value Added (log)	Manufacturing Employment (log)	Manufacturing Export (log)
VA_PS_RL	-0.008***	-0.003	0.005
	(-3.1)	(-0.1)	(0.7)
GDP Per Capita	0.043	0.250***	-0.523***
	(1.1)	(5.2)	(-4.9)
Urbanization	0.027	-0.317***	-0.721***
	(0.4)	(-5.0)	(-3.9)
Domestic Credit	-0.152***	-0.064*	0.127
	(-5.0)	(-1.8)	(1.3)
Trade Openness	-0.232***	0.054	-0.106
	(-4.9)	(0.8)	(-0.6)
Export Concentration	-1.466***	-0.731***	-2.472***
	(-12.1)	(-5.1)	(-7.1)
Oil Export Dummy	-0.068	0.001	-0.321**
	(-1.5)	(0.0)	(-2.1)
FDI	-0.080***	-0.001	-0.052
	(-6.1)	(-0.1)	(-1.2)
Consumer Price Index	0.044*	-0.077*	-0.372***
	(1.7)	(-1.9)	(-3.0)
Human Capital	0.029***	0.006	0.182***
	(4.5)	(1.1)	(5.8)
Transportation	-0.027***	-0.002	0.020
	(-2.9)	(-0.2)	(0.9)
Energy	0.016***	-0.001	0.019**
	(5.1)	(-0.0)	(2.6)
r_id=1 East Africa	-0.334***	-0.470***	2.320***
	(-3.8)	(-4.3)	(5.4)
r_id=2 Central Africa	0.291***	-0.440***	3.880***
	(3.2)	(-3.7)	(7.0)
r_id=4 South Africa	0.288***	-0.397***	3.351***
	(3.9)	(-4.6)	(6.4)
r_id=5 West Africa	0.246***	0.186*	3.589***
	(3.1)	(1.9)	(6.3)
Constant	3.248***	1.206***	0.835
	(11.2)	(2.8)	(0.9)
Year Dummy	YES	YES	YES
No. of Obs.	763	763	638
R-Squared	0.44	0.46	0.53
F Statistic	24.06	49.76	16.50

***, ** and *denote statistical significance at the 1%, 5% and 10% levels, respectively. Pooled OLS regression with robust standard errors. Dummy variables for time are included. Based on Kruskal Wallis test for endogeneity, dummy variables for regions included.

Table 5.11 presents the results of the interaction terms between institutions and regional dummies and the effect of institutions in each region compared to the base category: North Africa.

Table 5.11 - Interaction between institutions and regional dummies using North Africa as a base region

	Manufacturing Value Added (log)	Manufacturing Employment (log)	Manufacturing Export (log)
VA_PS_RL	0.010*	0.010**	0.056**
	(1.9)	(2.6)	(2.0)
GDP Per Capita	0.092**	0.388***	-0.481***
	(2.4)	(8.1)	(-4.1)
Urbanization	0.044	-0.120*	-0.606***
	(0.6)	(-1.7)	(-3.3)
Domestic Credit	-0.169***	-0.110***	-0.011
	(-5.3)	(-3.3)	(-0.1)
Trade Openness	-0.262***	0.093	-0.093
	(-5.6)	(1.5)	(-0.5)
Export Concentration	-1.466***	-0.754***	-2.607***
	(-12.4)	(-5.2)	(-7.5)
Oil Export Dummy	-0.086*	-0.089	-0.286*
	(-1.9)	(-1.6)	(-1.7)
FDI	-0.091***	0.005	-0.089*
	(-6.8)	(0.3)	(-1.9)
Consumer Price Index	0.026	-0.229***	-0.334***
	(0.7)	(-5.1)	(-2.7)
Human Capital	0.030***	0.020***	0.184***
	(4.7)	(3.4)	(5.8)
Transportation	-0.025***	-0.008	0.016
	(-2.7)	(-0.8)	(0.7)
Energy	0.014***	0.002	0.016**
	(4.8)	(0.6)	(2.5)
r_id=1 East Africa	0.256	1.191***	3.278**
	(1.2)	(6.2)	(2.6)
r_id=2 Central Africa	0.957***	1.743***	6.996***
	(2.9)	(5.2)	(4.3)
r_id=4 South Africa	1.618***	0.959***	4.231***
	(5.7)	(3.4)	(2.8)
r_id=5 West Africa	0.769***	0.167	6.786***
	(3.7)	(0.9)	(5.7)
East Africa # VA_PS_RL	-0.017***	-0.043***	-0.027
	(-3.1)	(-8.6)	(-0.8)
Central Africa # VA_PS_RL	-0.019*	-0.067***	-0.096**
	(-1.7)	(-6.1)	(-2.2)
South Africa # VA_PS_RL	-0.032***	-0.028***	-0.032
	(-5.2)	(-4.7)	(-0.9)
West Africa # VA_PS_RL	-0.015***	0.005	-0.087***
	(-2.8)	(1.1)	(-2.9)
Constant	2.530***	-0.278	-1.123
	(7.8)	(-0.63)	(-0.7)
No. of Obs.	763	763	638
R-Squared	0.459	0.534	0.55
F Statistic	25.10	45.15	18.81

***, ** and *denote statistical significance at the 1%, 5% and 10% levels, respectively. Pooled OLS regression with robust standard errors. Dummy variables for time are included.

First of all, although most African countries are among the top ethnically fractionalized nations in the world,[6] as shown by Posner (2004) index of ethnic fractionalization, the latter is particularly high in East Africa (see also (Nwapi, 2016). Ethnic fractionalization is related to social polarization and entrenched interest groups creating sub-optimal policies and weak institutions (Englebert, 2000).

Second, East Africa countries are highly aid-dependent, even more than the rest of the continent, and this has a number of consequences related to institutional effectiveness (Erixon, 2003; Salih, 2012; Stein, 2009). The high reliance on aids affects governments' revenues from taxation, by discouraging the efforts towards tax collections, which many argue to be basic in the institutional development of countries (Knack, 2000; Brautigam and Knack, 2004). It also reduces tax shares by providing an alternative, non-earned source of revenue and decreasing the quality of tax administration while weakening government accountability. Moreover, since aid are a form of rent for governments, the flow also leads public officials to deviate from benevolent and responsible behavior; rents are likely to be trapped by them whenever they exist (Young and Sheehan, 2014; Wako, 2018). They have also reduced the efficiency of the public bureaucracy and judiciary system, escalating the level of corruption.

As stated before, the remainder of the interactions seem to point to general positive relations between institutions and manufacturing. However, when looking more closely, it appears that most of the positive effect is due not to institutions per se, but to the role of the regional socio-economic and political environment in which institutions are places, i.e., there might be "environmental" factors strongly shaping the effect of institutions within regions. In other words, *the context and the dynamics of the internal environment and the economic structure of region*s might determine to a large extent the effect of institutions on the development of manufacturing. On the other hand, the interaction per se between institutions and regional dummies seem to have a moderating role on the general result. One possible implication coming from this is that, in order to potentiate the effect of institutions on manufacturing development and structural change, institution design and implementation should be more related to the existing regional context.

As for the controls, most of them keep their significance and direction both with and without interactions (Table 5.10 and 5.11), with very few exceptions[7].

[6] World Atlas

[7] The exceptions are as follows: GDP per capita loses its significance in relation to manufacturing value added where the interactions are included; oil export loses the negative significance for value added and becomes negative and not significant for exports; FDI becomes negative and significant for exports; human capital

First, GDP per capita has a statistically significant and positive relationship with manufacturing employment – confirming the idea that richer households consume more manufactured good and therefore positively contribute to employment - while it has a negative relation with export – reinforcing the idea that export incentives can be found in cases of limited domestic markets. Urbanization seems to have no association with manufacturing value-added, while it has a negative and significant relation with employment and export, in line with the idea of premature urbanization.

Concerning trade flows, trade openness has a negative and significant relation with value-added, highlighting that some concerns in relation to the effect of globalization on structural change in Africa could be raised, while it is not related to employment and export. Export concentration has a negative and significant relation with all the three measurements manufacturing. Added to the results related to oil export dummy, which is negative when significant, this points to a support of the Dutch disease effect hypothesis. FDI has a statistically significant and negative relationship with manufacturing value-added, in line with the contribution highlighting the concentration of international investment towards extractive activities and in any case away from manufacturing, while it has no association with employment.

Coming to the inflation effect, it has a statistically significant and negative relationship with manufacturing employment and export, while it has no relation with value-added. In this case, inflation seem to be discouraging effect of a rise in prices in particular for external competitiveness and job creation.

With respect to infrastructure, transportation is found to have a significant and negative relationship with value-added, confirming the weakness of infrastructural endowment promoting manufacturing growth, while energy seems to have a positive association with all the measurement excepting employment. In this case, the idea that energy is increasingly becoming an infrastructure that most of the firms, here included those active in manufacturing, can access to, seem to be confirmed.

becomes positive and significant manufacturing employment. All in all, these changes which might be depending on the calculations related to the inclusion of interactions are not worrisome, since the general meaning of the direction that such variables effect might have is kept. The case in which the results change, in any case, are not commented since the results are not robust.

Finally, when significant, the coefficient associated with human capital is always positive, in line with those contributions that underline the importance of such factor in successful structural change experiences.

5.5. Conclusions

This empirical study confirms that institutional quality indeed has overall a significant role in the development of the manufacturing sector, be it in manufacturing value-added, employment or export. These results, however, have to be considered in the context of heterogeneity among regions and homogeneity within regions. This implies that the context and the dynamics of the internal environment and the economic structure of regions might determine the effect of institutions on the development of manufacturing. This points to the necessity to realign institutions with the social and economic structures of regions in a more context-based way, as well as to emphasize the interdependencies among sectors that demand better and strategic coordination. There is also a need to solve coordination failures arising from various inter-sectoral and structural arrangements that determine the development of manufacturing in Africa, characterized by bottlenecks and constraints related to lack of development in the local production systems, economic diversifications, and value additions.

These issues indicate that the demand for structural change in African economies goes far beyond simple changes in the sectoral compositions of outputs or employment. Rather, it requires changes in the multidimensional aspects of socio-economic and political systems, including social structure, the political economy of institutions and institutional setting, the production structure, and its relationships with the internal and external climate. Through a holistic approach coupled with strategic coordination of these multidimensional and interdependent processes, African nations could transform their economies from the weak and fragile low value-added service sectors and informal activities to a well-designed intersectoral and economy-wide structural change. The prevalent economic conditions in Africa pose several challenges to initiate and sustain such transformation of economic and social structures. In particular, there is a need for extensive investment in four essential areas: infrastructure, human capital, export diversification, and institutional settings. However, the task of enhancing them is complicated since managing each of these areas comprises an integral component for rolling into structural change and attaining the ultimate objectives.

There is also a need to shift from natural resource dependence to export diversification so that African countries can strategically utilize the opportunities arising from an increasing engagement in the international market. Based on Africa's demographic advantages and the potential for regional integration, a well-designed and coordinated economy with a diversified structure enclosing various sectors linked together can trigger self-sustaining local demand decreasing the heavy dependence on external demand outside Africa. More dependence on expanding domestic and regional markets with growing aggregate demand presents an extended potential for a high level of employment creation and value additions, export diversification, creative activities, and learning opportunities.

As also pointed out by the results related to the controls, one of the major determinants of structural change is to facilitate an institutional configuration into the internal production structure and to strategically coordinate domestic production systems, sectors and stakeholders. The macroeconomic policies should consider structural interdependencies, country-and region-specific contexts, and coordination with other relevant policies such as financial and trade integration policies, sector, and production-specific policies. The results suggest that enforcing these policies demands considerations for endogenously evolved institutions to facilitate the structural change process in a more contextual and effectively coordinated way.

In this sense, policies should be developed as instruments to build the institutional foundation for structural change to facilitate a productive private-public interface that generates the emergence of capable and responsible governments and strong institutions. The quality of policymaking determines the success of institutional configurations, while the evolution of institutional configurations determines the ability of governments to formulate and execute policies. At the same time, the executed policies would affect institutional configuration and evolution. Therefore, the two-way relationship between institutions and policies determines structural change.

FINAL REMARKS

Due to the peculiar features of the structure of their economies, African nations are those having experienced more difficulties and an unusual structural change, which bypassed the manufacturing sector. This was due to the government's failure to address the 'trade-off' between macroeconomic stability on one side and achieving sustainable economic development on the other side. This challenge followed them throughout their post-independence years, regardless of the adopted development paradigms.

During the earlier post-independent years, the development processes of most African countries were severely restrained, mainly due to the considerable gap between the ambitious visions for economic take-offs rooted in their development plans and the limitations of actual governments' capacity and institutional arrangements in implementing them.

Nowadays, this problem seems to persist, calling for strategic coordination among multilayered policy instruments and institutions called to manage the complex interdependent structural dynamics. In this regard, there is a need for greater consideration of certain institutional arrangements that are in favor of a more dynamic and heterogeneous economic structure. This, in practice, entails comprehensive reforms and extensive investments that are both highly context and production specific and complementary and supplementary to each other. Context and production specificity implies that the mere importation of institutions from the developed economies might not be beneficial: instead, context and production-specific institutions are required to get economic systems harmonized and work well together and to create complementarities to be promoted by means of policies investing in horizontal and vertical linkages across sectors.

Having said that, this study identified some areas where the African governments can redesign and realign their policies and institutions to ensure a successful inter-sectoral structural change in the continent.

It might be good to start from where they are already specialized: the resources and commodity export, which are mainly in the hand of the African governments or of foreign investors. The real "natural resource course" seems to be due not to the abundance of natural resources, but to their mismanagement and to wrong policy responses.

In order to enhance the quality of the management of natural resources, the starting point is to favor an institutional reform, especially with regard to corrupted and rentier governments that divert the larger amount of revenues coming from resource and commodity exports to their own interests. Being able to avoid this type of failure can save a huge amount of revenues that can be reinvested in important sectors, especially infrastructures supporting the production system and industrial upgrading. The revenue from natural resource rents and the subsequent public sector expenditures on infrastructure (electricity, transportation, high-ways, port facilities, railways, etc.) can lower costs of doing business, encourage investment and entrepreneurship, improve the efficiency of the productive sectors, and reduce the effect of the appreciation of the real exchange rate. Establishments of Special Economic Zones (SEZ) can be another area of public investment, especially SEZ for SMEs in manufacturing sectors that can serve as a building bridge between micro and large enterprises within and across sectors. Rentier behaviors can be discouraged by reinforcing punishment mechanisms for corrupted officials and raising the salaries of public servants in general. Government should also reinforce a democratic system of government to deploy check and balance mechanisms and to ensure subsequent transparency and accountability. In this way, governments can tackle the problems of rentier regimes that are often associated with economic distortions, favoritism, clientelism, and contained economic and political pressures (Cadot et al., 2016; Nicet, 2020). While presenting possible solutions to rentier behavior and corruption, however, one has to recognize that such behaviors have been long widespread in Africa, and so far, they have not been solved. In other words, such problems tend to be rooted in political and social structures, and their resolution represents a difficult task, as well as one of the most relevant challenges for the institutional assets of the continent.

A "healthy" management of natural resources also entails dealing with FDI attraction in Africa. What seems to be relevant is not to attract FDI per se, but based on the potential spillover effects on domestic productive capabilities and/or on the level of value addition of the sectors they are entering. This means that African governments also to reconsider attracting extractive FDIs, which are less labor-intensive, have limited spillover effect, and have a deterrent effect on domestic sectors, coupled with persistent profit flows to their country of origin. This can be achieved by creating a suitable investment climate, and by fostering linkages and strategic coordination among domestic and foreign investments. For instance, African nations can take advantage of the expansion of global supply chains. In particular, export-oriented FDI in manufacturing productions could be expanded. Due to its highly increasing domestic labor costs, the Republic of China can be an ideal player. Chinese companies might,

in fact, be incentivized to move to Africa in the low-skilled and labor-intensive stages of production (Lin, 2012; AfDB, 2017). However, in order to take advantage of such possible localization of Chinese and foreign FDI to these countries, strong and highly capable governments are needed in order to use such resources for the technology transfer and upgrading of the manufacturing system.

Parallel to natural resources management, in order to favor structural change, institutions should also deal with the empowerment of the domestic manufacturing sector. Once again, one possible way can be to start from what is already existing, i.e., the primary sector. An intermediate step to move out of traditional farm products can be achieved by promoting "industries without smokestacks" (Page, 2018), i.e., non-traditional agricultural activities such as horticulture, aquaculture, floriculture, agro-industries, and services. These activities have many similar characteristics to manufacturing, since they are tradable and can absorb a considerable number of low and moderately skilled labor with a high value-added per worker. For this reason, they can represent the first step for a strategy for structural change. These sectors can be promoted further by improving the investment climate, building the capacity to diversify export, and promoting agro-industries and agglomerations to create linkage with other sectors. It will also allow reaching a gradual export diversification. Even more than what the direct reinvestment of revenues from natural resources can do, export diversification can serve as a mechanism to distribute natural resource-based revenues to other supplementary and complementary sectors (Page, 2008; Page & Tarp, 2019). To further promote export diversification, one opportunity can be to take advantage of global production networks: the ongoing fragmentation of global production and value chains might allow African nations to strategically choose to specialize in particular stages of production, instead of an extensive investment in building the entire industry and sector domestically (Baldwin, 2016; Haraguchi et al., 2019). Another possible way to proceed in this sense is to encourage public-private partnerships investments, especially in strategic and unexploited sectors of the economy. This can also be done by establishing Export-Processing Zones (EPZ) that can enhance both short and long-term competitiveness in the global market. The establishment of EPZ and production of new products in unexploited sectors, in turn, requires research and development and human skill, knowledge, and experience in exploring new, affordable, and efficient production techniques (Samouel & Aram, 2016). Therefore, as said before, promoting quality education that produces an eqipped labor force with relevant labor market and management skills through entrepreneurial activities, R&D, and innovation is also crucial (Cabral & Veiga 2012; Espoir, 2020).

Other actions should target the tertiary sector, favoring structural change by leveraging on the rapidly growing low value-added service sectors. First, the wholesale and retailing services can be used as intermediate inputs for the agribusiness and apparel GVCs and as channels to reap the benefits of globalization. This can potentially drive the gradual movement of resources from low- to high-productivity activities, provided that institutions are able to build the mechanisms through which such transfer should take place.

Second, it is desirable to extensively invest in human capital. Rather than only in terms of quantity, policies should also tackle the quality and should be also driven by considerations of their impact on the economic and production systems instead of by irrelevant political agendas (i.e., ethnic proportion). Through this, African countries can enhance high productivity services, such as business services and the financial sector, which are skill intensive. A signal in this direction, especially in technology-based services, is represented, for instance, by the expansion of mobile banking services across the continent (Cadot et al., 2016). Moreover, by promoting networks of schools of technology and innovation, like the ones in India, and by promoting quality-based education systems, African countries can take advantage of services-driven convergence.

Third, service upgrading can be achieved by providing government support to the low value-added informal services, in order to transform them into formal services more linked and supportive to manufacturing.

All this points to the fact that Africa's structural change cannot be a spontaneous process and requires massive policy interventions and institutional strengthening, which also need to be context and production specific. Building the structural change on what already exists, however, does not imply neglecting the importance that might be represented by the relations with other African and foreign countries.

In this regard, institutions should, first of all, promote socio-economic and political Pan-Africanism, in order to foster regional economic integration in intra-African investment and trade relations through cross-border entrepreneurship. In this way, African countries can strengthen their economies and complement each other's weaknesses; for instance, the inauguration of the African Continental Free Trade Area (ACFTA) could help increase intra-Africa trade. Regional integration experiences like this also play a crucial role in aligning the procedure of customs and in the facilitation of the cross-border movement of individuals, goods, and services. A common African currency might facilitate trade and investment across the countries of the African Union, and hence reduce transaction costs in cross-border business, and avoid volatility in exchange rates. This is also crucial for the deterrent effects of exchange

rate appreciation that negatively affect the development of modern domestic sectors, especially manufacturing.

Furthermore, African countries should also strengthen the mutually beneficial socio-economic and political relations with the developed world. At the same time, they need to break the vicious circle of the aid-debt-growth nexus. This nexus is usually mismanaged and misaligned with the internal system and economic structure of African nations, because both foreign aid and public debt seem to deteriorate the quality of institutions either by creating rentier classes or by escalating corruption in government institutions. Furthermore, to provide loans and financial support, or to issue debt relief, the international financial institutions like WB and IMF usually put the GSIs and other policies as conditionalities, which in turn force African countries into conditions that are not feasible for their local context and institutional political economy.

Appendix

Figure 1 Trend of manufacturing value added in each country over time

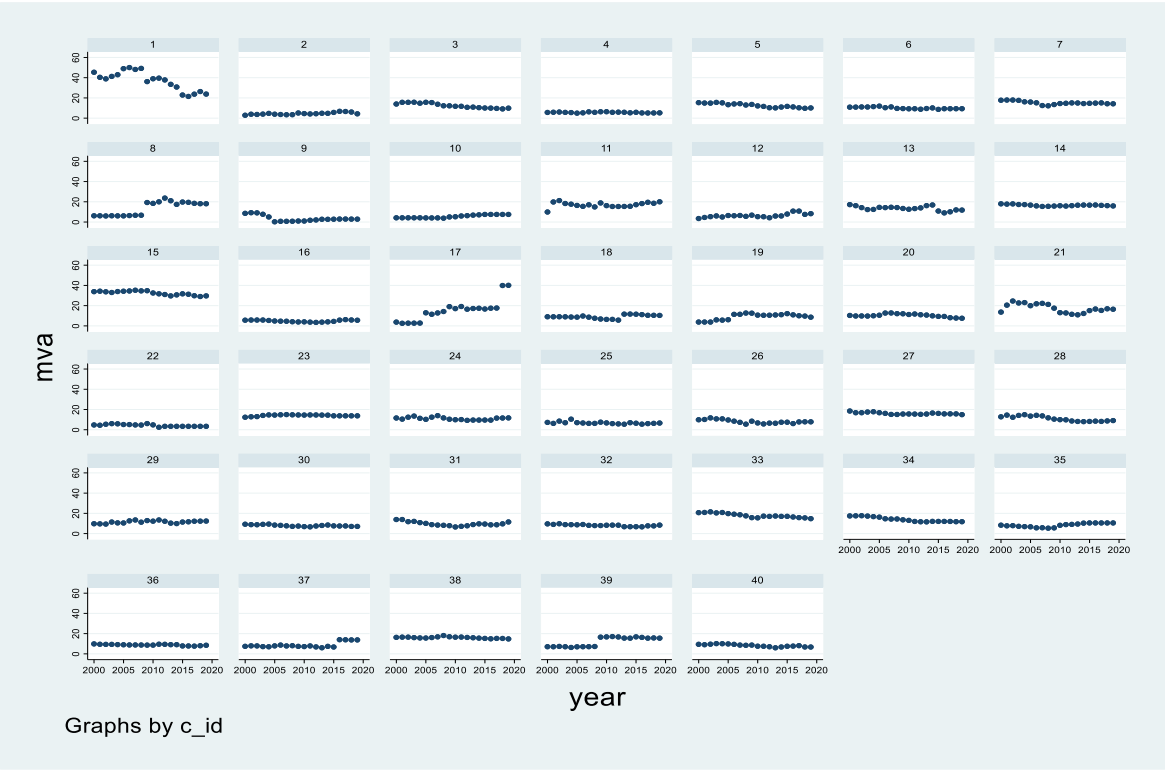


Figure 2 Trend of manufacturing value added in each country over time

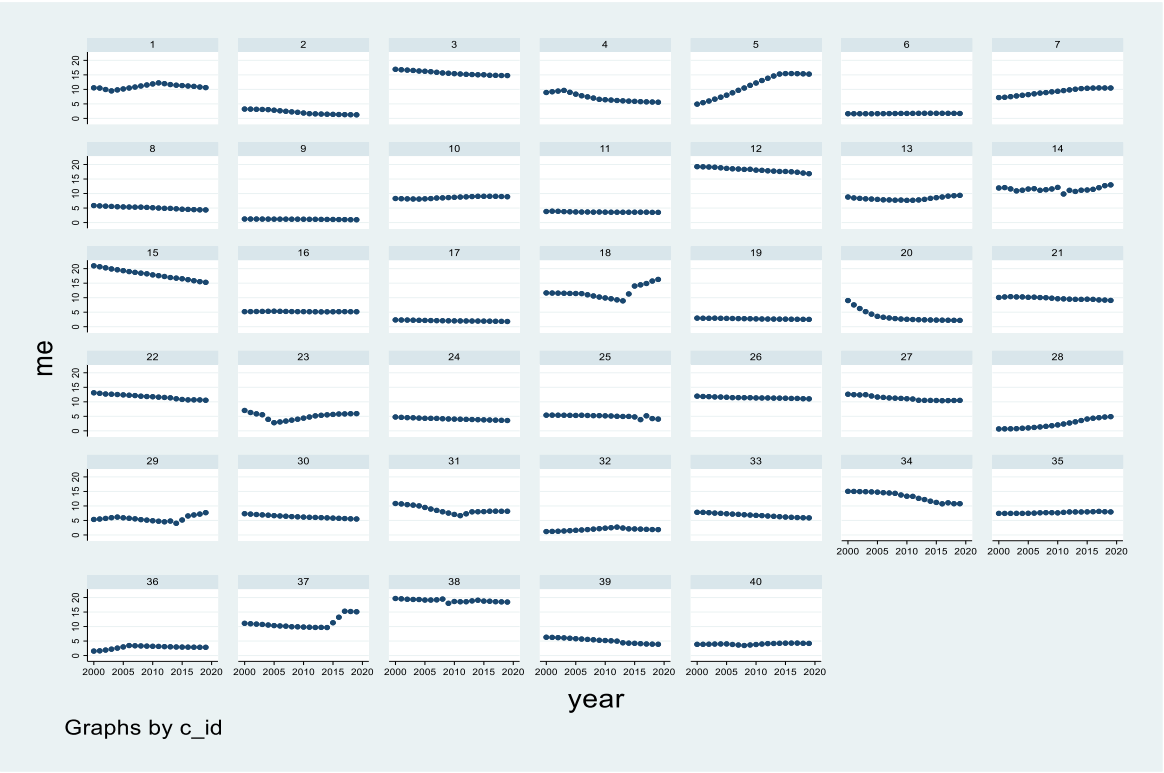


Figure 3 Trend of manufacturing export in each country over time

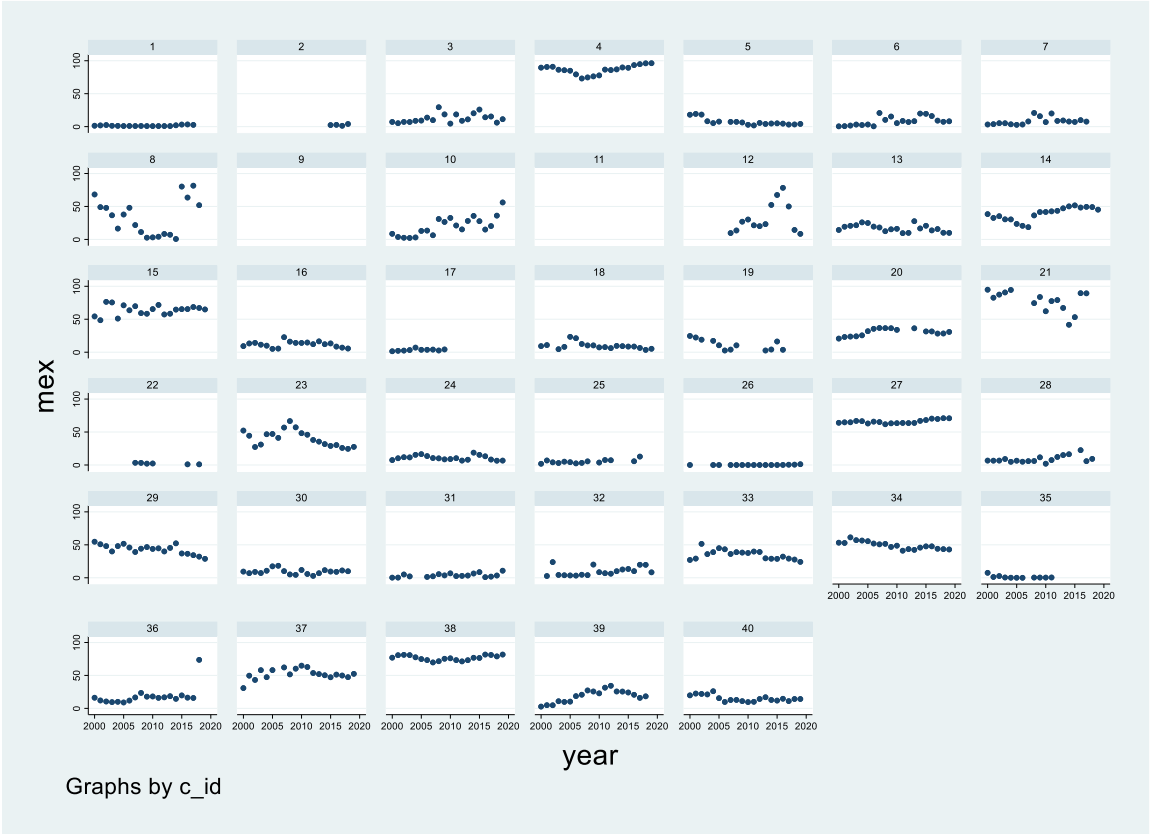


Table A 1 List of Countries within the five regions

East Africa	West Africa	Central Africa	South Africa	North Africa
1) Burundi	14) Benin	24) Angola	31) Botswana	36) Algeria
2) Comoros	15) Burkina Faso	25) Cameroon	32) Eswatini	37) Egypt
3) Ethiopia	16) Cote d'Ivoire	26) Central African Republic	33) Lesotho	38) Libya
4) Kenya	17) Ghana	27) Chad	34) Namibia	39) Morocco
5) Madagascar	18) Guinea	28) Congo Dem.	35) South Africa	40) Tunisia
6) Malawi	19) Mauritania	29) Congo Rep.		
7) Mali	20) Niger	30) Gabon		
8) Mozambique	21) Nigeria			
9) Rwanda	22) Senegal			
10) Sudan	23) Togo			
11) Tanzania				
12) Uganda				
13) Zambia				

Table A2 Institutional quality indicators and Manufacturing Value Added

Dependent Variable: Manufacturing Value Added (% of GDP)	(1)	(2)	(3)	(4)
VA_PS_GE	0.003 (1.4)			
VA_PS_RL		0.002 (1.1)		
VA_PS_CC			0.003 (1.5)	
VA_PS_RQ				0.004* (1.7)
GDP per capita	0.103***	0.107***	0.103***	0.098***
	(2.7)	(2.9)	(2.7)	(2.6)
Urbanization	-0.164***	-0.158***	-0.161***	-0.171***
	(-2.8)	(-2.7)	(-2.7)	(-2.9)
Domestic credit	-0.176***	-0.174***	-0.176***	-0.178***
	(-6.0)	(-5.8)	(-5.9)	(-6.0)
Trade openness	-0.012	-0.010	-0.014	-0.015
	(-0.3)	(-0.2)	(-0.3)	(-0.4)
Export Concentration	-1.450***	-1.461***	-1.453***	-1.436***
	(-11.8)	(-12.0)	(-11.9)	(-11.6)
Oil export dummy	0.049	0.042	0.052	0.058
	(1.1)	(0.9)	(1.1)	(1.2)
FDI	-0.081***	-0.081***	-0.081***	-0.082***
	(-6.0)	(-6.0)	(-5.9)	(-6.0)
Consumer Price Index	0.087***	0.087***	0.087***	0.088***
	(3.1)	(3.1)	(3.2)	(3.2)
Human Capital	0.004	0.004	0.004	0.004
	(0.7)	(0.7)	(0.8)	(0.8)
Transportation	-0.043***	-0.044***	-0.044***	-0.043***
	(-5.3)	(-5.4)	(-5.4)	(-5.3)
Energy	0.013***	0.013***	0.013***	0.013***
	(4.7)	(4.7)	(4.7)	(4.8)
Constant	2.676***	2.656***	2.667***	2.676***
	(10.4)	(10.4)	(10.4)	(10.5)
Year Dummy	YES	YES	YES	YES
Regional Dummy	NO	NO	NO	NO
No. of Obs.	763	763	763	763
R-Squared	0.37	0.36	0.37	0.37
F Statistic	19.15	19.01	19.05	19.18

***, ** and *denote statistical significance at the 1%, 5% and 10% levels, respectively. Pooled OLS regression with robust standard errors. Dummy variables for time are included. Dummy variables for regions are not included.

Table A3 Institutional Quality Indicators and Manufacturing Employment

Dependent Variable: Manufacturing Employment (% of total employment)	(1)	(2)	(3)	(4)
VA_PS_GE	0.001 (0.3)			
VA_PS_RL		0.003 (1.2)		
VA_PS_CC			0.003 (1.1)	
VA_PS_RQ				0.000 (0.1)
GDP Per Capita	0.269***	0.257***	0.258***	0.272***
	(4.6)	(4.5)	(4.4)	(4.7)
Urbanization	-0.389***	-0.407***	-0.403***	-0.385***
	(-5.7)	(-6.1)	(-6.1)	(-5.7)
Domestic Credit	-0.037	-0.041	-0.041	-0.036
	(-1.0)	(-1.1)	(-1.1)	(-0.9)
Trade Openness	0.089	0.081	0.080	0.090
	(1.5)	(1.4)	(1.4)	(1.6)
Export Concentration	-0.727***	-0.697***	-0.700***	-0.734***
	(-4.4)	(-4.3)	(-4.3)	(-4.4)
Oil Export Dummy	0.051	0.079	0.078	0.045
	(0.9)	(1.4)	(1.4)	(0.8)
FDI	-0.014	-0.015	-0.015	-0.014
	(-0.8)	(-0.8)	(-0.8)	(-0.8)
Consumer Price Index	-0.150***	-0.147***	-0.147***	-0.150***
	(-3.6)	(-3.6)	(-3.6)	(-3.6)
Human Capital	0.004	0.004	0.004	0.004
	(1.0)	(0.9)	(0.9)	(1.0)
Transportation	-0.034***	-0.033***	-0.033***	-0.034***
	(-4.1)	(-4.0)	(-4.0)	(-4.1)
Energy	-0.003	-0.003	-0.003	-0.003
	(-0.7)	(-0.8)	(-0.8)	(-0.7)
Constant	1.495***	1.540***	1.532***	1.482***
	(4.2)	(4.4)	(4.4)	(4.2)
Year Dummy	YES	YES	YES	YES
Regional Dummy	NO	NO	NO	NO
No. of Obs.	763	763	763	763
R-Squared	0.34	0.34	0.34	0.34
F Statistic	30.88	31.26	31.35	30.44

***, ** and *denote statistical significance at the 1%, 5% and 10% levels, respectively. Pooled OLS regression with robust standard errors. Dummy variables for time are included. Dummy variables for regions are not included.

Table A4 Institutional Quality Indicators and Manufacturing Export

Dependent Variable: Manufacturing Export (% of merchandise export)	(1)	(2)	(3)	(4)
VA_PS_GE	0.052*** (6.1)			
VA_PS_RL		0.054*** (6.6)		
VA_PS_CC			0.052*** (6.7)	
VA_PS_RQ				0.056*** (6.8)
GDP Per Capita	-0.224**	-0.227**	-0.216**	-0.261***
	(-2.4)	(-2.5)	(-2.4)	(-2.8)
Urbanization	-0.821***	-0.856***	-0.773***	-0.880***
	(-4.0)	(-4.2)	(-4.0)	(-4.3)
Domestic Credit	0.027	0.044	0.022	0.014
	(0.3)	(0.5)	(0.2)	(0.1)
Trade Openness	0.225	0.196	0.191	0.202
	(1.2)	(1.0)	(1.0)	(1.1)
Export Concentration	-2.952***	-2.961***	-3.050***	-2.867***
	(-8.4)	(-8.5)	(-8.8)	(-8.3)
Oil Export Dummy	-0.068	-0.001	-0.007	-0.036
	(-0.4)	(-0.1)	(-0.1)	(-0.2)
FDI	-0.030	-0.034	-0.025	-0.033
	(-0.5)	(-0.6)	(-0.4)	(-0.6)
Consumer Price Index	-0.172*	-0.155	-0.130	-0.161
	(-1.7)	(-1.6)	(-1.3)	(-1.6)
Human Capital	-0.012	-0.013	-0.007	-0.005
	(-1.1)	(-1.1)	(-0.6)	(-0.5)
Transportation	0.146***	0.145***	0.139***	0.143***
	(4.2)	(4.2)	(4.1)	(4.2)
Energy	-0.018*	-0.020**	-0.019*	-0.016*
	(-1.8)	(-2.0)	(-2.0)	(-1.7)
Constant	3.031***	3.076***	2.808***	2.965***
	(2.8)	(2.9)	(2.7)	(2.8)
Year Dummy	YES	YES	YES	YES
Regional Dummy	NO	NO	NO	NO
No. of Obs.	638	638	638	638
R-Squared	0.36	0.37	0.36	0.37
F Statistic	18.09	18.36	18.22	18.19

***, ** and *denote statistical significance at the 1%, 5% and 10% levels, respectively. Pooled OLS regression with robust standard errors. Dummy variables for time are included. Dummy variables for regions are not included.

Table A5 Institutional Quality Indicators and Manufacturing Value Added with regional dummy

Dependent Variable: Manufacturing Value Added	(1)	(2)	(3)	(4)
VA_PS_GE	-0.007***			
	(-2.7)			
VA_PS_RL		-0.008***		
		(-3.1)		
VA_PS_CC			-0.007***	
			(-2.9)	
VA_PS_RQ				-0.006**
				(-2.2)
GDP Per Capita	0.042	0.043	0.041	0.039
	(1.1)	(1.1)	(1.1)	(1.0)
Urbanization	0.018	0.027	0.012	0.014
	(0.2)	(0.4)	(0.2)	(0.2)
Domestic Credit	-0.148***	-0.152***	-0.151***	-0.149***
	(-5.0)	(-5.0)	(-5.0)	(-4.9)
Trade Openness	-0.229***	-0.232***	-0.227***	-0.229***
	(-4.8)	(-4.9)	(-4.8)	(-4.8)
Export Concentration	-1.462***	-1.466***	-1.456***	-1.459***
	(-12.0)	(-12.1)	(-12.0)	(-11.9)
Oil Export Dummy	-0.056	-0.068	-0.063	-0.047
	(-1.2)	(-1.5)	(-1.4)	(-1.0)
FDI	-0.081***	-0.080***	-0.082***	-0.081***
	(-6.1)	(-6.1)	(-6.1)	(-6.1)
Consumer Price Index	0.050**	0.044*	0.046*	0.051**
	(2.0)	(1.7)	(1.8)	(2.0)
Human Capital	0.028***	0.029***	0.028***	0.026***
	(4.3)	(4.5)	(4.4)	(4.1)
Transportation	-0.027***	-0.027***	-0.027***	-0.026***
	(-2.9)	(-2.9)	(-2.8)	(-2.7)
Energy	0.015***	0.016***	0.015***	0.015***
	(5.0)	(5.1)	(5.1)	(4.9)
r_id=1 East Africa	-0.333***	-0.334***	-0.336***	-0.339***
	(-3.8)	(-3.8)	(-3.8)	(-3.8)
r_id=2 Central Africa	0.288***	0.291***	0.286***	0.281***
	(3.1)	(3.2)	(3.1)	(3.0)
r_id=4 South Africa	0.269***	0.288***	0.278***	0.255***
	(3.6)	(3.9)	(3.7)	(3.4)
r_id=5 West Africa	0.232***	0.246***	0.235***	0.220***
	(2.9)	(3.1)	(3.0)	(2.7)
Constant	3.226***	3.248***	3.266***	3.264***
	(11.0)	(11.2)	(11.2)	(11.1)
Year Dummy	YES	YES	YES	YES
No. of Obs.	763	763	763	763
R-Squared	0.44	0.44	0.44	0.44
F Statistic	24.16	24.06	23.99	24.04

Table A6 Institutional Quality Indicators and Manufacturing Employment with regional dummy

Dependent Variable: Manufacturing Employment	(1)	(2)	(3)	(4)
VA_PS_GE	-0.003			
	(-1.1)			
VA_PS_RL		-0.003		
		(-0.1)		
VA_PS_CC			0.003	
			(0.3)	
VA_PS_RQ				-0.004
				(-1.4)
GDP Per Capita	0.258***	0.250***	0.249***	0.261***
	(5.4)	(5.2)	(5.2)	(5.4)
Urbanization	-0.298***	-0.317***	-0.320***	-0.289***
	(-4.6)	(-5.0)	(-5.0)	(-4.4)
Domestic Credit	-0.061*	-0.064*	-0.065*	-0.059*
	(-1.7)	(-1.8)	(-1.8)	(-1.7)
Trade Openness	0.052	0.054	0.054	0.051
	(0.8)	(0.8)	(0.8)	(0.8)
Export Concentration	-0.753***	-0.731***	-0.729***	-0.765***
	(-5.3)	(-5.1)	(-5.1)	(-5.3)
Oil Export Dummy	-0.023	0.001	0.004	-0.031
	(-0.4)	(0.0)	(0.1)	(-0.5)
FDI	0.001	-0.001	-0.001	0.001
	(0.1)	(-0.1)	(-0.1)	(0.1)
Consumer Price Index	-0.084**	-0.077*	-0.075*	-0.088**
	(-2.1)	(-1.9)	(-1.9)	(-2.2)
Human Capital	0.009	0.006	0.006	0.010*
	(1.6)	(1.1)	(1.0)	(1.7)
Transportation	-0.004	-0.002	-0.002	-0.005
	(-0.4)	(-0.2)	(-0.2)	(-0.5)
Energy	0.001	-0.001	-0.001	0.001
	(0.1)	(-0.0)	(-0.1)	(0.1)
r_id=1 East Africa	-0.453***	-0.470***	-0.472***	-0.448***
	(-4.1)	(-4.3)	(-4.3)	(-4.1)
r_id=2 Central Africa	-0.411***	-0.440***	-0.443***	-0.399***
	(-3.4)	(-3.7)	(-3.7)	(-3.3)
r_id=4 South Africa	-0.344***	-0.397***	-0.404***	-0.323***
	(-3.9)	(-4.6)	(-4.5)	(-3.6)
r_id=5 West Africa	0.231**	0.186*	0.181*	0.250**
	(2.3)	(1.9)	(1.8)	(2.4)
Constant	1.179***	1.206***	1.208***	1.190***
	(2.7)	(2.8)	(2.8)	(2.7)
Year Dummy	YES	YES	YES	YES
No. of Obs.	763	763	763	763
R-Squared	0.46	0.46	0.46	0.46
F Statistic	49.50	49.76	49.78	49.48

Table A7 Institutional Quality Indicators and Manufacturing Export with regional dummy

Dependent Variable: Manufacturing Export	(1)	(2)	(3)	(4)
VA_PS_GE	-0.006			
	(-0.8)			
VA_PS_RL		0.005		
		(0.7)		
VA_PS_CC			-0.001	
			(-0.1)	
VA_PS_RQ				-0.000
				(-0.0)
GDP Per Capita	-0.491***	-0.523***	-0.508***	-0.510***
	(-4.8)	(-4.9)	(-4.9)	(-4.9)
Urbanization	-0.650***	-0.721***	-0.684***	-0.688***
	(-3.5)	(-3.9)	(-3.7)	(-3.8)
Domestic Credit	0.134	0.127	0.129	0.129
	(1.4)	(1.3)	(1.3)	(1.3)
Trade Openness	-0.113	-0.106	-0.110	-0.109
	(-0.6)	(-0.6)	(-0.6)	(-0.6)
Export Concentration	-2.529***	-2.472***	-2.498***	-2.495***
	(-7.2)	(-7.1)	(-7.2)	(-7.1)
Oil Export Dummy	-0.415***	-0.321**	-0.371**	-0.365**
	(-2.8)	(-2.1)	(-2.4)	(-2.4)
FDI	-0.049	-0.052	-0.050	-0.051
	(-1.1)	(-1.2)	(-1.1)	(-1.1)
Consumer Price Index	-0.400***	-0.372***	-0.389***	-0.386***
	(-3.4)	(-3.0)	(-3.2)	(-3.2)
Human Capital	0.194***	0.182***	0.188***	0.187***
	(6.1)	(5.8)	(5.9)	(5.9)
Transportation	0.012	0.020	0.016	0.017
	(0.5)	(0.9)	(0.7)	(0.8)
Energy	0.021***	0.019**	0.020***	0.020***
	(2.8)	(2.6)	(2.7)	(2.7)
r_id=1 East Africa	2.389***	2.320***	2.352***	2.347***
	(5.5)	(5.4)	(5.4)	(5.4)
r_id=2 Central Africa	3.979***	3.880***	3.927***	3.921***
	(7.2)	(7.0)	(7.1)	(7.0)
r_id=4 South Africa	3.558***	3.351***	3.458***	3.443***
	(6.7)	(6.4)	(6.4)	(6.4)
r_id=5 West Africa	3.769***	3.589***	3.681***	3.668***
	(6.5)	(6.3)	(6.3)	(6.2)
Constant	0.718	0.835	0.793	0.795
	(0.8)	(0.9)	(0.8)	(0.8)
Year Dummy	YES	YES	YES	YES
No. of Obs.	638	638	638	638
R-Squared	0.53	0.53	0.53	0.53
F Statistic	16.60	16.50	16.52	16.51

Table A8 Interaction between institutional quality indicators and regional dummies; North Africa as base region

Dependent Variable: Manufacturing Value Added (% of GDP)	(1)	(2)	(3)	(4)
VA_PS_GE	0.008			
	(1.5)			
VA_PS_RL		0.005		
		(0.9)		
VA_PS_CC			0.009	
			(1.4)	
VA_PS_RQ				0.010*
				(1.9)
GDP Per Capita	0.087**	0.075**	0.072*	0.092**
	(2.2)	(2.0)	(1.8)	(2.4)
Urbanization	0.047	0.051	0.023	0.044
	(0.7)	(0.7)	(0.3)	(0.6)
Domestic Credit	-0.165***	-0.175***	-0.173***	-0.169***
	(-5.2)	(-5.5)	(-5.5)	(-5.3)
Trade Openness	-0.254***	-0.252***	-0.243***	-0.262***
	(-5.4)	(-5.3)	(-5.2)	(-5.6)
Export Concentration	-1.482***	-1.484***	-1.471***	-1.466***
	(-12.6)	(-12.6)	(-12.6)	(-12.4)
Oil Export Dummy	-0.099**	-0.115**	-0.101**	-0.086*
	(-2.1)	(-2.5)	(-2.2)	(-1.9)
FDI	-0.087***	-0.085***	-0.086***	-0.091***
	(-6.4)	(-6.3)	(-6.2)	(-6.8)
Consumer Price Index	0.034	0.030	0.035	0.026
	(0.9)	(0.8)	(0.9)	(0.7)
Human Capital	0.029***	0.032***	0.028***	0.030***
	(4.5)	(4.9)	(4.5)	(4.7)
Transportation	-0.025***	-0.026***	-0.024***	-0.025***
	(-2.7)	(-2.8)	(-2.6)	(-2.7)
Energy	0.015***	0.015***	0.015***	0.014***
	(5.2)	(5.3)	(5.4)	(4.8)
r_id=1 East Africa	0.335	0.268	0.375	0.255
	(1.5)	(1.1)	(1.6)	(1.2)
r_id=2 Central Africa	0.827**	0.690*	0.714*	0.957***
	(2.6)	(1.9)	(1.8)	(3.0)
r_id=4 South Africa	1.517***	1.382***	1.365***	1.618***
	(5.5)	(4.5)	(4.6)	(5.7)
r_id=5 West Africa	0.712***	0.648***	0.689***	0.769***
	(3.4)	(2.7)	(2.9)	(3.7)
East Africa # VA_PS_GE	-0.019***			
	(-3.5)			
Central Africa # VA_PS_GE	-0.014			
	(-1.3)			

South Africa # VA_PS_GE	-0.030*** (-4.8)			
West Africa # VA_PS_GE	-0.013** (-2.4)			
East Africa # VA_PS_RL		-0.018*** (-2.8)		
Central Africa # VA_PS_RL		-0.010 (-0.8)		
South Africa # VA_PS_RL		-0.026*** (-3.7)		
West Africa # VA_PS_RL		-0.011* (-1.8)		
East Africa # VA_PS_CC			-0.021*** (-3.4)	
Central Africa # VA_PS_CC			-0.011 (-0.8)	
South Africa # VA_PS_CC			-0.027*** (-3.9)	
West Africa # VA_PS_CC			-0.013** (-2.1)	
East Africa # VA_PS_RQ				-0.017*** (-3.1)
Central Africa # VA_PS_RQ				-0.019* (-1.7)
South Africa # VA_PS_RQ				-0.032*** (-5.2)
West Africa # VA_PS_RQ				-0.015*** (-2.8)
Constant	2.505***	2.663***	2.628***	2.530***
	(7.8)	(7.8)	(7.9)	(7.9)
No. of Obs.	763	763	763	763
R-Squared	0.46	0.46	0.46	0.46
F Statistic	25.23	24.51	24.95	25.10

Table A9 Interaction between institutional quality indicators and regional dummies; North Africa as base region

Dependent Variable: Manufacturing Employment (% of total employment)	(1)	(2)	(3)	(4)
VA_PS_GE	0.006			
	(1.6)			
VA_PS_RL		0.009**		
		(2.3)		
VA_PS_CC			0.012***	
			(2.8)	
VA_PS_RQ				0.010**
				(2.6)
GDP Per Capita	0.359***	0.372***	0.355***	0.261***
	(7.5)	(7.9)	(7.7)	(5.4)
Urbanization	-0.136*	-0.140**	-0.205***	-0.289***
	(-2.0)	(-2.0)	(-3.2)	(-4.4)
Domestic Credit	-0.100***	-0.117***	-0.107***	-0.059*
	(-2.9)	(-3.3)	(-3.0)	(-1.7)
Trade Openness	0.097	0.087	0.085	0.051
	(1.5)	(1.4)	(1.3)	(0.8)
Export Concentration	-0.768***	-0.718***	-0.695***	-0.765***
	(-5.3)	(-4.9)	(-4.9)	(-5.3)
Oil Export Dummy	-0.092*	-0.082	-0.077	-0.031
	(-1.6)	(-1.4)	(-1.4)	(-0.5)
FDI	0.014	0.011	0.008	0.001
	(0.8)	(0.7)	(0.5)	(0.0)
Consumer Price Index	-0.207***	-0.210***	-0.194***	-0.088**
	(-4.6)	(-4.7)	(-4.2)	(-2.2)
Human Capital	0.020***	0.017***	0.014**	0.010*
	(3.3)	(2.9)	(2.5)	(1.7)
Transportation	-0.008	-0.005	-0.004	-0.005
	(-0.8)	(-0.5)	(-0.4)	(-0.5)
Energy	0.003	0.003	0.002	0.000
	(0.7)	(0.9)	(0.6)	(0.1)
r_id=1 East Africa	1.098***	0.978***	1.006***	-0.448***
	(5.7)	(4.8)	(5.3)	(-4.1)
r_id=2 Central Africa	1.245***	1.403***	1.447***	-0.399***
	(3.9)	(4.3)	(3.8)	(-3.3)
r_id= 4 South Africa	0.684***	0.684***	0.656***	-0.323***
	(2.7)	(2.7)	(2.6)	(-3.6)
r_id=5 West Africa	0.100	0.125	0.147	0.250**
	(0.5)	(0.7)	(0.8)	(2.4)
East Africa # VA_PS_GE	-0.041***			
	(-8.2)			
Central Africa # VA_PS_GE	-0.052***			
	(-4.6)			
South Africa # VA_PS_GE	-0.021***			

	(-3.9)			
West Africa # VA_PS_GE	0.007			
	(1.6)			
East Africa # VA_PS_RL		-0.038***		
		(-6.9)		
Central Africa # VA_PS_RL		-0.059***		
		(-5.3)		
South Africa # VA_PS_RL		-0.022***		
		(-4.0)		
West Africa # VA_PS_RL		0.006		
		(1.2)		
East Africa # VA_PS_CC			-0.039***	
			(-7.8)	
Central Africa # VA_PS_CC			-0.061***	
			(-4.6)	
South Africa # VA_PS_CC			-0.023***	
			(-4.1)	
West Africa # VA_PS_CC			0.004	
			(0.8)	
East Africa # VA_PS_RQ				-0.043***
				(-8.6)
Central Africa # VA_PS_RQ				-0.067***
				(-6.0)
South Africa # VA_PS_RQ				-0.028***
				(-4.7)
West Africa # RQ				0.005
				(1.1)
Constant	-0.068	-0.140	0.009	-0.278
	(-0.2)	(-0.3)	(0.0)	(-0.6)
No. of Obs.	763	763	763	763
R-Squared	0.52	0.52	0.51	0.53
F Statistic	47.60	43.28	43.96	45.15

Table A10 Interaction between institutional quality indicators and regional dummies; North Africa as base region

Dependent Variable: Manufacturing Export (% of merchandise export)	(1)	(2)	(3)	(4)
VA_PS_GE	0.066**			
	(2.2)			
VA_PS_RL		0.094***		
		(3.0)		
VA_PS_CC			0.055*	
			(1.9)	
VA_PS_RQ				0.056**
				(2.0)
GDP Per Capita	-0.393***	-0.455***	-0.538***	-0.481***
	(-3.5)	(-3.9)	(-4.3)	(-4.1)
Urbanization	-0.503***	-0.634***	-0.658***	-0.606***
	(-2.8)	(-3.4)	(-3.6)	(-3.3)
Domestic Credit	-0.024	-0.065	-0.020	-0.011
	(-0.2)	(-0.6)	(-0.2)	(-0.1)
Trade Openness	-0.103	-0.088	-0.116	-0.093
	(-0.5)	(-0.4)	(-0.6)	(-0.5)
Export Concentration	-2.659***	-2.678***	-2.771***	-2.607***
	(-7.6)	(-7.5)	(-8.1)	(-7.5)
Oil Export Dummy	-0.314**	-0.216	-0.266	-0.286*
	(-2.0)	(-1.3)	(-1.6)	(-1.8)
FDI	-0.090*	-0.097**	-0.073	-0.089*
	(-1.9)	(-2.0)	(-1.5)	(-1.9)
Consumer Price Index	-0.360***	-0.319**	-0.310**	-0.334***
	(-3.1)	(-2.6)	(-2.4)	(-2.7)
Human Capital	0.182***	0.172***	0.182***	0.184***
	(5.7)	(5.5)	(5.6)	(5.8)
Transportation	0.014	0.014	0.017	0.016
	(0.6)	(0.6)	(0.8)	(0.7)
Energy	0.017**	0.013*	0.015**	0.016**
	(2.5)	(1.9)	(2.1)	(2.5)
r_id=1 East Africa	3.927***	4.535***	3.444***	3.278**
	(2.9)	(3.0)	(2.7)	(2.6)
r_id=2 Central Africa	7.589***	7.689***	6.269***	6.996***
	(4.6)	(4.3)	(3.7)	(4.3)
r_id=4 South Africa	5.356***	5.107***	3.423**	4.231***
	(3.6)	(3.0)	(2.3)	(2.8)
r_id=5 West Africa	7.160***	7.827***	6.609***	6.786***
	(5.8)	(5.7)	(5.7)	(5.7)
r_id=1 East Africa # VA_PS_GE	-0.043			
	(-1.3)			
r_id=2 Central Africa # VA_PS_GE	-0.114**			
	(-2.5)			
r_id=4 South Africa # VA_PS_GE	-0.056			
	(-1.6)			

r_id=5 West Africa # VA_PS_GE	-0.097***			
	(-3.2)			
r_id=1 East Africa # VA_PS_RL		-0.063*		
		(-1.7)		
r_id=2 Central Africa # VA_PS_RL		-0.118**		
		(-2.4)		
r_id=4 South Africa # VA_PS_RL		-0.060		
		(-1.6)		
r_id=5 West Africa # VA_PS_RL		-0.120***		
		(-3.7)		
r_id=1 East Africa # VA_PS_CC			-0.035	
			(-1.1)	
r_id=2 Central Africa # VA_PS_CC			-0.075	
			(-1.5)	
r_id=4 South Africa # VA_PS_CC			-0.017	
			(-0.5)	
r_id=5 West Africa # VA_PS_CC			-0.085***	
			(-2.9)	
r_id=1 East Africa # VA_PS_RQ				-0.027
				(-0.9)
r_id=2 Central Africa # VA_PS_RQ				-0.096**
				(-2.2)
r_id=4 South Africa # VA_PS_RQ				-0.032
				(-0.9)
r_id=5 West Africa # VA_PS_RQ				-0.087***
				(-3.0)
Constant	-1.968	-2.090	-0.447	-1.123
	(-1.3)	(-1.2)	(-0.3)	(-0.7)
No. of Obs.	638	638	638	638
R-Squared	0.55	0.56	0.55	0.55
F Statistic	18.92	19.21	18.57	18.81

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