The High 5
Le Top 5

Structural Transformation: A competitiveness-based view

Christian Ketels



Working Paper Series
n° 258
May 2017
African Development Bank Group

AFRICAN DEVELOPMENT BANK GROUP

Working Paper Nº 258

Abstract

Competitiveness has been proposed as an integrated framework to understand the drivers of prosperity differences across locations (Porter, 1990). This chapter outlines key elements of the competitiveness framework and relates them to the idea of structural transformation (Lin, 2016, 2012).
What emerges are significant similarities and complementarities between the two, as well as other related work on new industrial policy, economic complexity, evolutionary economic geography and innovation systems. All of these approaches share a granular and often sector-specific perspective on microeconomic structures and systems, moving beyond macroeconomic, economy-wide, or single-factor microeconomic explanations of prosperity and development.

But there are also meaningful differences with significant policy implications: the competitiveness literature views sectoral composition as a largely endogenous part of development, while the structural transformation literature frames it as a fundamental driver of development. The competitiveness literature argues for a focus on upgrading competitiveness fundamentals in a highly context-specific way, using all existing clusters of related industries as platforms to inform and mobilize action to upgrade competitiveness. The structural transformation literature suggests pushing the development of specific industries perceived to have more development potential, using industry-specific interventions.

This paper is the product of the Vice-Presidency for Economic Governance and Knowledge Management. It is part of a larger effort by the African Development Bank to promote knowledge and learning, share ideas, provide open access to its research, and make a contribution to development policy. The papers featured in the Working Paper Series (WPS) are those considered to have a bearing on the mission of AfDB, its strategic objectives of Inclusive and Green Growth, and its High-5 priority areas—to Power Africa, Feed Africa, Industrialize Africa, Integrate Africa and Improve Living Conditions of Africans. The authors may be contacted at workingpaper@afdb.org.

Rights and Permissions
All rights reserved.

The text and data in this publication may be reproduced as long as the source is cited. Reproduction for commercial purposes is forbidden. The WPS disseminates the findings of work in progress, preliminary research results, and development experience and lessons, to encourage the exchange of ideas and innovative thinking among researchers, development practitioners, policy makers, and donors. The findings, interpretations, and conclusions expressed in the Bank's WPS are entirely those of the author(s) and do not necessarily represent the view of the African Development Bank Group, its Board of Directors, or the countries they represent.

Working Papers are available online at https://www.afdb.org/en/documents/publications/working-paper-series/

Produced by Macroeconomics Policy, Forecasting, and Research Department

Coordinator
Adeleke O. Salami

Correct citation: Ketels C. (2017), Structural Transformation: A competitiveness-based view, Working Paper Series N° 258, African Development Bank, Abidjan, Côte d'Ivoire.

Structural Transformation: A competitiveness-based view

Christian Ketels

Keywords: competitiveness, cluster, development, growth, economic policy

JEL Classification: O10, O11, L16

1. Introduction

The research on competitiveness aims to enhance our understanding of the drivers of prosperity differences across locations, focusing especially on aspects that can inform policy to support higher levels of prosperity (Porter, 1990; Porter, 2000; Delgado et al., 2013). This chapter outlines key elements of the competitiveness framework, and discusses how it relates to the idea of structural transformation.

What emerges are significant similarities and complementarities that connect the competitiveness approach with the new work on structural transformation (Lin, 2016, 2012) as well as other related work on new industrial policy (Rodrik, 2004; Warwick, 2013; Stiglitz and Lin, 2013), economic complexity (Hausmann and Klinger, 2007; Hausmann et al., 2013), evolutionary economic geography (Boschma et al., 2017; Neffke et al., 2011) and innovation systems (Nelson, 1993; Asheim and Gertler, 2004). All of these approaches share a granular and often sector-specific perspective on microeconomic structures and systems, moving beyond macroeconomic, economy-wide, or single-factor microeconomic explanations of prosperity and development.

But focusing specifically on the relationship between competitiveness and structural transformation the discussion also reveals meaningful differences: the competitiveness literature views sectoral composition as a largely endogenous part of development, and focuses on how productive a location is in the industries it has. The focus of structural transformation literature is sectoral composition as a fundamental driver of development, with emphasis on the set of industries a location should attract to achieve prosperity growth.

These different views on what explains productivity differences are reflected in the implications drawn for economic policy. The competitiveness literature argues for a focus on upgrading competitiveness fundamentals in a highly context-specific way, using existing clusters of related industries as important platforms for action (Ketels, 2011; Ketels and Memedovic, 2008). This body of literature is concerned with the process of how policies can be selected and implemented, and who needs to be involved. It sees the choice of sectors in which this happens as largely operational and determined by the given composition of an economy. The structural transformation literature suggests pushing the development of industries found in economies that are similar but already more advanced, using industry-specific improvements in competitiveness fundamentals,

as well as support to firms exploring opportunities in these sectors (Lin, 2016). It is focused on identifying those sectors that would enable a location to achieve higher levels of prosperity and that are reliant on assets and capabilities the location is able to develop. It sees the choice and implementation of policy instruments as largely operational and within reach for most relevant countries.

In many ways, the conceptual differences between these two research streams seem to be related to the different contextual situations in which they have emerged. The competitiveness work has largely originated in advanced economies with well diversified economies for which better alignment of microeconomic policies to cluster-specific needs is critical and where future pathways in terms of industrial diversification are unknown. New structural economics focuses instead on developing and emerging economies, where accelerating the transition into modern sectors is a powerful driver of prosperity growth and where likely directions of structural transformation seem more predictable.

The two bodies of literature also differ on what factors are most critical in holding back existing efforts to support development (or have been decisive in allowing some countries to succeed). The competitiveness framework sees two types of failures: Countries that follow the traditional advice of the structural reforms/Washington consensus literature and try to upgrade the many cross-cutting dimensions of the general business environment overstretch their ability to implement change, as well as failing to create distinctive advantages in individual fields of economic activity for their location. Countries that instead target specific firms or industries often fail to enhance the underlying competitiveness fundamentals of their economy, and become susceptible to powerful interest groups. The structural transformation literature shares the skepticism on the sufficiency of cross-cutting policies as enablers of prosperity growth. But it sees the poor track record of firm- and sector-specific policies as being more related to poor sectoral choices, not primarily to failures in the choice and implementation of policies. This is where this literature aims to provide more robust support to governments.

Despite these differences, there has been a visible convergence in the views on policy across the two approaches: the need for changes in sector composition to be anchored in the upgrading of underlying competitiveness fundamentals and changes in comparative advantages given by factor endowments. What remains is a potentially productive tension between the two that can trigger

new research, as well as policy experimentation. Competitiveness-based approaches need to deal with the question of how countries can accelerate structural change, not just get better at what they have been doing in the past. And structural transformation-based approaches have to find policy instruments to enable the emergence of more productive activities that avoid the challenges of past industrial policy interventions. This chapter hopes to inspire more work along these lines.

2. Competitiveness and economic development

Defining competitiveness

Competitiveness is the level of prosperity that a location can sustain for its citizens, given the conditions it offers for firms to compete successfully in local and global markets (Porter, 1990; Porter, 2000; Porter, Rivkin and Kanter, 2013). This productivity-based definition is anchored in the research on cross-country differences in prosperity and long-term growth rates (Hall and Jones, 1999; IADB, 2010; Lewis, 2004). The empirical literature has operationalized this definition through different quantitative measures of productivity and prosperity (Delgado et al., 2012; Aiginger, 2015). The focus on productivity as the key driver of prosperity and prosperity growth is shared by the productivity-based view of competitiveness and the literature on structural transformation.

Competitiveness has been a controversial concept ever since it entered the debate in the early 1990s (Porter, 1990; Krugman, 1994; Boltho, 1999; Kitson et al., 2004; De Grauwe, 2010). The controversy was mainly driven by alternative definitions of competitiveness that were motivated by different policy questions, not by inherent disagreements with the productivity-based view. The cost/market share-based view, its main contender, defines competitiveness as the ability to sell on international markets. The ability to export has important repercussions for macroeconomic aggregates, especially the sustainability of external balances, and is because of this relationship highly relevant for international financial institutions.

Both concepts are thus in their own right meaningful, and productivity and the ability to sell are clearly also empirically related. But while they are related, they capture distinct aspects of economic performance and can lead to diametrically opposing policy recommendations (Ketels, 2016): Policies that lead to higher productivity are also positive for growing exports. But there are policies like devaluation and lowering wages that support higher exports, which do not raise productivity, but could reduce e prosperity. It is this difference in policy recommendations that has

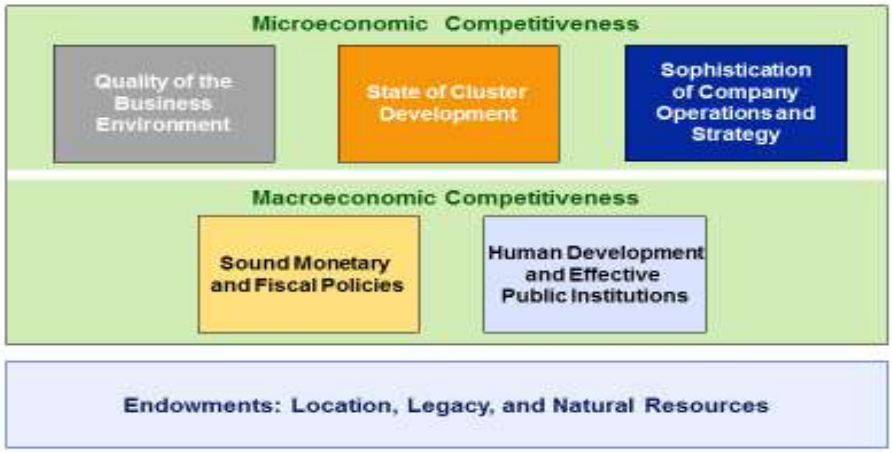
fueled the controversy about the term, competitiveness, and its different definitions. For the remainder of this chapter, we will focus on competitiveness as defined by the productivity-based view.

Drivers of competitiveness

Competitiveness has both an output component, i.e. the level of productivity and ultimately prosperity reached, and an input component, i.e. the set of factors that causally drives these outcomes. The latter is particularly important for policy since it defines where changes have to be made in order to achieve sustainable improvements in prosperity outcomes.

The competitiveness framework looks predominantly at input factors shaped by current policy choices. It argues that there is broad range of factors that can be relevant, and provides an inclusive organizing structure for diagnosing a location. This contrasts with much of the empirical growth literature that instead tries to identify a small number of factors that are on average most powerful in explaining productivity differences across all locations.

Figure 1: What Determines Competitiveness?



Source: Porter et al., 2006

2

The competitiveness framework distinguishes at a first level between macroeconomic and microeconomic factors (Delgado et al., 2012). Macroeconomic factors are those that shape the general context in which companies operate, without having a direct impact on productivity. This

includes the quality of macroeconomic policies, as well as that of public institutions and their services. Microeconomic factors are those that directly drive firm-level productivity through either the behavior of firms or the assets that they can draw on.

The competitiveness literature has particularly focused on understanding the role of different aspects of microeconomic competitiveness (Porter et al., 2006). First, business environment conditions cover the assets, capabilities, and structural market conditions that shape the level of productivity firms can achieve. Prior and subsequent research proposed a wide range of business environment conditions as relevant, ranging from the availability and quality of input factors (e.g., skills, knowledge, capital, and infrastructure) to the openness of markets, and the costs imposed by rules and regulations. The 'diamond' provided a conceptual framework to combine these different factors and emphasize the interplay between them (Porter, 1990). It also significantly raised the awareness of the role of local demand conditions as a critical driver of productivity growth and innovation (Fagerberg, 2011).

Second, clusters capture the presence of related industries in a particular location that through multiple linkages and externalities influence both the productivity level firms can achieve and the strategic options they face for positioning in the markets they operate in. Long featured in the literature on regions and economic geography, the competitiveness framework emphasized their role in understanding productivity differences across locations (Porter, 1990; Ketels, 2011). The empirical research revealed a systematic relationship between cluster presence and economic performance (e.g., Audretsch and Feldman, 1996; Delgado et al, 2010, 2014). It also showed that while clusters differ in depth and functions, they do exist in economies at very different stages of economic development (Zeng, 2008; Long and Zhang, 2012).

Third, firm sophistication directly addresses the way firms compete, organize, and operate. While business environment conditions and the presence of clusters set the context, firms make many further internal choices that ultimately set the level of productivity they achieve. This idea has recently found strong support in the empirical literature on management quality across locations (Bloom et al., 2016). It showed large differences in management quality to exist and matter for prosperity, even after controlling for other factors.

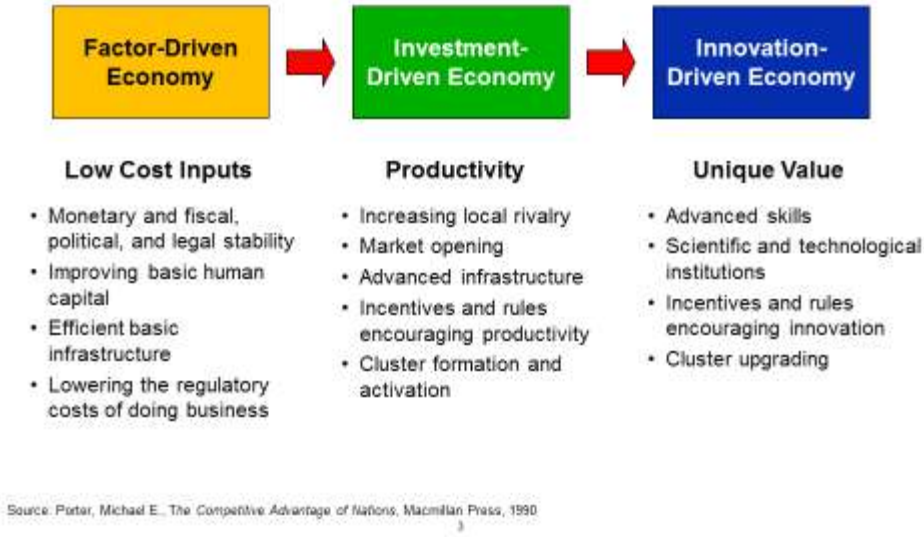
The competitiveness literature stands in contrast to the work on 'deep roots' (Spolaore, Wacziarg, 2012), which explains prosperity differences across locations with different types of long-seating

legacies. Especially the role of institutions, geographic location, and the connection between the two has been debated intensely (Acemoglu and Johnson, 2012; McCord and Sachs, 2013). Natural resources have been analyzed in their dual role as a source of wealth and a 'curse' undermining prosperity growth (Frankel, 2010; Sachs and Warner, 2001). The 'deep roots' literature views the microeconomic factors that are the focus of the competitiveness research as largely endogenous to locations' legacy. The empirical tests of the competitiveness framework reveal, conversely, that even controlling for 'deep roots' macro- and especially microeconomic competitiveness matter independently (Delgado et al., 2012).

Competitiveness and economic development

In the competitiveness literature, economic development is characterized as *"a process of successive upgrading, in which a nation's business environment evolves to support and encourage increasingly sophisticated and productive ways of competing"* (Porter et al., 2006, p. 56). This process can be described by characteristic stages (Porter, 1990). At the factor-driven stage, economies compete on low cost through providing access to cheap factors of production, particularly labor. At the investment-driven stage, their advantage shifts to high productivity driven by access to human and physical capital and other conditions that drive efficiency. At the innovation-driven stage, the unique value from the new products, services, and business models dominates, driven by further enhancement in competitiveness factors that encourage innovation and entrepreneurship.

Figure 2: Stages of Development



Source: Porter, Michael E., *The Competitive Advantage of Nations*, Macmillan Press, 1990

As economies move through these stages, the relative importance of different aspects of competitiveness—and, by extension, the policies that affect them —changes. The quantitative work on competitiveness has found microeconomic factors to matter more at higher stages of development, much as had been predicted (Delgado et al., 2012). This thinking has found its reflection in measurements of competitiveness like the Global Competitiveness Report (Sala-i-Martin et al., 2015).

The stages framework suggests that locations face particularly complex upgrading challenges when they move from one 'stage' to another. In such situations economies require systemic and coordinated changes across a broad range of policies, in some cases including steps that undermine previously important strengths. The middle-income trap, discussed elsewhere in this Handbook, can be understood as situations where countries fail to achieve such a broad-based shift in policies.

Vietnam is an example of a country approaching the first transition from a factor- to an investment-driven stage (Cung et al., 2010). So far, it could focus on opening up to and enabling global investment and trade, which has driven significant growth and structural change towards manufacturing. Now the country will have to build a broad range of capabilities and business environment qualities to enhance productivity in the industries that have emerged. Singapore is an

example of an economy with strong aspirations to be innovation-driven (Kang and Phang, 2005). It has increased its science and research capacity. Singapore's main challenge now is to move beyond the strict rules-driven approach in firms and government policy that drove growth in the investment-driven stage. It has to create more local entrepreneurship in an economy traditionally driven by large multinationals and government-linked companies.

While the competitiveness framework provides a structure to describe and analyze economic development, it does not conceptualize a dynamic model of self-sustaining development. The competitiveness upgrading that underpins development is largely seen as the result of specific policy choices and actions.

Policies for competitiveness upgrading

Competitiveness has from the start been conceived as a framework to not only understand outcomes, but also inform policy action (Porter, 1990). But the academic competitiveness literature has focused more on positive aspects than on developing a policy framework to guide practitioners (Gordon, 2011). The debate on competitiveness policy reveals a strong focus on clarifying the goals and motivations for economic policy, and contributing to a more effective design and implementation of programs.

Setting the right goal for policy. The competitiveness framework suggests identifying productivity upgrading as the overarching goal for competitiveness policy. This focus on productivity stands in contrasts to other objectives that dominate practical policy debates, like jobs, investment, or exports. In the competitiveness framework, these categories are seen as important signs of and intermediate steps towards higher productivity, but not as useful targets for government action. The problems is that, as the case of exports in the market-share driven definition of competitiveness discussed above has demonstrated, there are policies that impact such intermediate outcomes through raising the private profitability of activities while potentially decreasing productivity and prosperity. While there might be other rationales for some of these policies, they cannot be motivated by the objective of competitiveness upgrading.

The case for government policy. The general motivation for government action is in the competitiveness framework viewed in traditional terms of market failure: government should take action where there are market failures that policy is able to effectively and efficiently address. There is no general presumption on the widespread existence of economies of scale or other

externalities that could motivate 'strategic' policies (Brander, 1995). And even where these mexist, there is generally a concern about the ability of government to successfully pursue such polices.

It is, however, widely acknowledged that local externalities affect economic geography and the emergence of clusters, in particular (Porter, 1990; Ketels, 2011). Policy practitioners have in a significant number of cases interpreted this view as a reason to launch policies trying to create clusters, an approach that has drawn significant criticism in the academic literature (e.g., Duranton, 2011). Conversely, the competitiveness framework sees clusters as key elements of a location's economic structure that emerge naturally in market processes. While government policies have a significant influence on cluster evolution, attempts to create clusters are subject to the well-known pitfalls that affect traditional industrial policies. Government should instead focus on providing information about cluster presence, convening cluster groups, and investing in cluster-specific public goods (Porter, 2007; Mills et al., 2008; Ketels, 2012).

The design of systemic policies: strategic selection and integration of policy actions. Traditional policy analysis tends to ask whether a specific intervention, like more funding for upgrading workforce skills, is in general welfare enhancing, and which specific instrument is able to achieve this goal in the most efficient way. The competitiveness framework sees policymakers facing an important prior question: what area(s) of competitiveness should our location focus on now? This question is relevant because there are many dimensions of competitiveness that ultimately need to be improved, but limited capacity to do everything at once. This is an even more pressing concern in developing or emerging countries with less robust institutions.

The competitiveness framework argues that the answer to this question needs to be location-specific (Barca et al., 2012). According to this view, the benefits of improving one dimension of competitiveness, say the level of workforce skills, depend on the quality of many other aspects of competitiveness in this location, like the available infrastructure and the nature of market competition (Goni and Maloney, 2014). Location-specific diagnostics need to drive the selection of priority policies (Hausmann et al., 2005; Rodrik, 2007).

The competitiveness framework further suggests that the impact of microeconomic policies is not only location, but often also cluster-specific: a decision to upgrade workforce skills does require choices about the type of skills to provide, and the nature and value of these skills is both cluster-specific and dependent on the strength of the relevant cluster in that location. Again, diagnostics

are critical to identify areas in which specific cluster-specific actions are a priority (Shriram et al., 2013). The effectiveness of many competitiveness upgrading efforts and policies can be enhanced if they are organized around existing clusters (Rodriguez-Clare, 2007; Ketels and Memedovic, 2008).

Improvements in competitiveness depend on how individual policies, both cross-cutting and cluster-specific, complement each other. This is another implication of the linkages between the different dimensions of microeconomic competitiveness. The competitiveness framework argues that effective growth policies are the result of both the selection of appropriate policy actions and the integration of these actions in a mutually reinforcing strategy. What such strategies should look like is the subject of an emerging literature on locational strategy. One question is whether they should focus on reducing relative weaknesses or creating unique advantages (Hausmann et al., 2005; Ketels, 2015). Another is whether they should concentrate on identifying key transformative new actions or on providing a broader framework for all relevant government policies (Foray, 2015).

Implementing policies for upgrading competitiveness. The policy-oriented work on competitiveness has placed significant emphasis on how to effectively implement policies. Two dimensions have been identified as particularly relevant: the role of different levels of geography, and the way the public and the private sector collaborate.

While the competitiveness literature initially focused on nations as the unit of analysis, there has been an increasing recognition of the important role of choices and actions at other levels of geography. Subnational regions have come into focus: Microeconomic conditions, sectorial composition, and economic performance differ not only across countries but also within countries. This observation has fueled research on understanding and measuring regional competitiveness (Kitson et al., 2004; Dijkstra et al., 2011). Regional governments have a unique and critical role in integrating policy instruments and aligning them with the specific needs of their economy (Ketels, forthcoming 2017). More broadly, the allocation and coordination of policy choices across different levels of government has a critical influence on many policies that drive competitiveness.

While policy discussions naturally focus on the role of government, the studies on competitiveness have led to a strong focus on the role of public private dialogue to achieve competitiveness upgrading (Fernandez-Arias et al., 2016). Platforms for public-private collaboration are needed to

inform and enable collective action when both knowledge and the ability to influence competitiveness fundamentals are disseminated across (many) different public and private entities (Porter/Emmons, 2003). And if a significant part of these dynamics is cluster-specific in nature, cluster initiatives become key backbone institutions for competitiveness upgrading (Sölvell et al., 2003).

3. Competitiveness and structural transformation

Key elements of structural transformation

The structural transformation literature builds on the long-standing empirical observation that the composition of economies differs systematically by stage of development (Herrendorf et al., 2014). In its initial form, composition was mainly understood as the relative size of the broad sectors agriculture, industry, and services. The literature proposed specific models of development that explain structural transformation as an endogenous process in response to factor accumulation, increasing wealth, and sector-specific properties of demand and production functions. Subsequent studies have emphasized that development is associated, not only with a shift into different activities, but also with diversification into a broader set of activities (Imbs and Wacziarg, 2003; Hausmann and Klinger, 2007). The studies have also linked structural transformation to changes in economic geography, in particular urbanization (Michaels et al., 2012) and inequality (Timmer and Akkus, 2008).

The new structural economics (Lin, 2012, 2016; see also the other chapters in this Handbook) develops a novel set of recommendations on ways economies can speed up the process of structural transformation. It argues that the market is the best mechanism for factor allocation but faces systematic failures in the exploration of new sectors. As policymakers consider how to overcome these failures without falling prey to the traditional pitfalls of industrial policy, two key suggestions from this new approach are worthy of note:

- First, as countries look at the direction of structural change to pursue, they can learn from the experience of peers with similar initial factor endowments that have already achieved higher levels of prosperity. The industries that they have seen emerge over time are the prime candidates to emerge for economies that follow in their steps.
- Second, as countries look at the tools they can deploy to achieve structural change, they need to focus on encouraging the exploration of market opportunities and unblocking

barriers in sector-specific competitiveness fundamentals. Location-specific policies with these features can help if economy-wide changes are too hard to achieve.

Contrasting the new structural economics with the competitiveness framework

New structural economics and the competitiveness framework both argue for a granular perspective in understanding development that moves beyond an analysis of macroeconomic aggregates. This section aims to develop in more detail the differences and similarities of the two approaches on their concepts of industrial structure, views on the drivers of prosperity differences across locations, the process of economic development, and the implications for economic policy.

Analytical categories for measuring economic structure. The new structural economics and the competitiveness framework both take a granular look at industrial structure. But they differ on their choice of analytical categories. Structural economics follows the traditional identification of sectors defined by broad features of their respective production functions. The competitiveness framework instead differentiates industries by their geographic footprint ('traded' = concentrated in a few places vs 'local' = dispersed and present in all places) and then organizes groups of related traded industries into specific cluster categories (Delgado et al., 2016).

These categories and the focus on cross-industry linkages have similarities with the work on economic complexity (Hausmann et al., 2013). Despite the differences in conceptual underpinnings and research method, there is a clear similarity between the categories used in the structural transformation and the competitiveness literature: traded clusters tend to be dominated by industry, and local sectors by services. However, this similarity is getting weaker as advanced services become an increasingly important part of the traded economy.

Figure 3: Traded and Local Industries: Mapping Clusters



The relationship between economic structure and prosperity. In their analysis of prosperity differences across locations, structural economics and the competitiveness framework observe the same regularities: locations at different stages of development differ significantly in their economic composition and breadth. But they draw different implications from this observation. For the structural transformation literature—both old and new—the sectoral composition drives prosperity. What you do, i.e. what the sectoral composition of your economy looks like, determines your level of prosperity.

In the competitiveness framework, sector composition plays a different role: it is largely endogenous to underlying competitiveness drivers, and thus viewed as a symptom, not as a driver of competitiveness. Productivity is determined, not only by the sectors present in a location, but also by the relative performance achieved in a location for a given sector. The evidence in the literature supporting this view has been largely drawn from advanced economies. In the US and Europe, there are significant wage and productivity differences across locations within sectors, clusters, and industries. Across US regions, one-third of prosperity differences across locations are found to be related to differences in sectoral composition, while two-thirds are explained by location-specific factors that influence the performance within sectors (Porter, 2003). European

data reveal regional specialization in high wage clusters (measured by their European average wage) to be statistically explained by business environment quality (Ketels and Protsiv, 2013). Studies on emerging economies show significant performance differences (static and over time) within industries across locations that are systematically related to qualities of the business environment (Valencia/Maloney, 2014). Still, further research covering structurally more heterogeneous economies will be needed to test the nature of these relationships for a broader sample of countries.

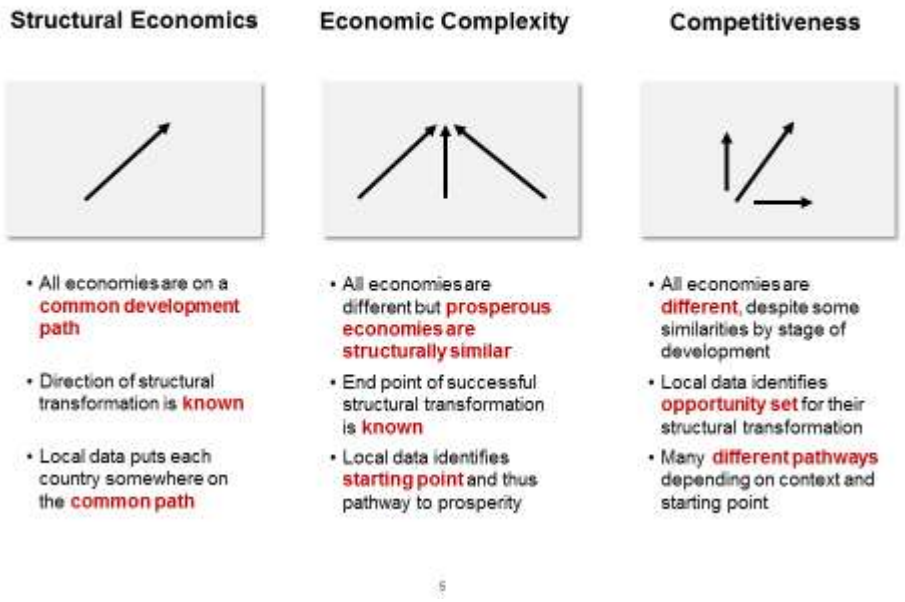
Patterns of economic development. In their description of how economic structure changes in the course of economic development, the perspectives of the structural economics and competitiveness framework overlap: Development is characterized by a process of related diversification into more advanced economic activities, in line with related studies on the evolution of regional economies and economic complexity (Neffke et al., 2011; Hausmann et al., 2013).

At a more complex level, however, there are some differences, especially in approaches to the conceptualization and identification of relatedness. Structural economics identifies relatedness based on the historical experiences of fundamentally comparable countries that have already achieved higher levels of development (Lin, 2016). The competitiveness-related cluster literature has instead identified relatedness through looking at patterns of co-location, input-output linkages, and overlaps in skill use at a given point in time (Delgado et al., 2016). These two approaches can lead to diverging results, especially in countries (e.g., Korea) that have successfully 'jumped' to entirely new industries not aligned with existing factor endowments (Studwell, 2013). For new structural economics, this presents a path that can and should inspire others, even though these countries also went significantly beyond their 'latent' competitive advantages (Rodrik, 2011). For the competitiveness framework these cases are more an exception to the rule where risky industrial policy worked because it was based on an unusually coherent and well implemented approach towards upgrading industry/cluster-specific business environment conditions in traded industries, providing effective incentives for firms to raise productivity.

Another difference between the two approaches relates to the nature of the development path. New structural economics views development as a continuum of structures that change and upgrade over time. Importantly, it views this continuum as generic and stable, i.e. all countries will follow essentially the same path, especially if they share similar starting conditions. There are similarities

to the economic complexity work that sees commonalities among prosperous economies but more variability among less advanced economies (Hausmann et al., 2013). The empirical similarities in the historical development paths across countries have been a key motivation for these views. Some new data suggest, however, that the pathways of the past might not characterize current trends or opportunities (Gollin et al., 2013; te Velde, 2013; Rodrik, 2015; Newman et al., 2016; Rodrik et al., 2017). And new conceptual work suggests that related diversification might be an important but not the only path of diversification (Boschma et al. 2017).

Figure 4: How does Economic Structure Change?
Hypotheses on the Nature of Development Pathways



The competitiveness framework proposes a typical pathway in its stages model as well, but places more emphasis on the tendency of individual countries to significantly diverge from this 'average' path (Porter et al., 2006, p. 57). Each location is seen as facing different opportunities to define its unique value proposition and develop competitive advantages for the specific types of activities it aims to compete in (Ketels, 2015). This perspective reduces the value of benchmarking and copying the path of other countries, and raises the need for individual choices.

Implications for economic policy. Finally, the question policymakers will ask is how the different conceptual approaches matter in terms of policy recommendations. Here the work on new structural economics (Lin, 2016; 2012; for a discussion of related tools, see Altenburg et al., 2016; McMillan et al., 2017 discuss a broader set of policies to drive structural transformation) has provided significantly more clarity on how structural transformation is to be achieved. The policy approach emerging is to a significant degree compatible with the competitiveness and cluster-based approach but some differences can remain that have the potential to result in divergent choices in practice.

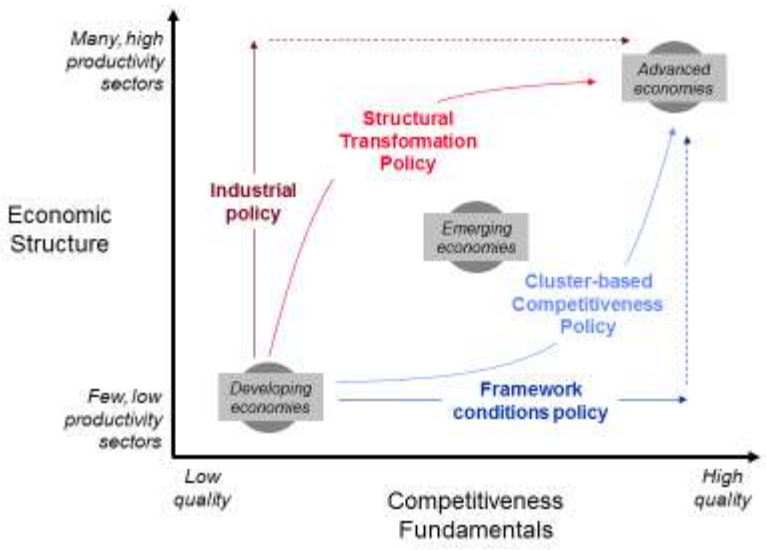
First, both approaches agree on the need to conduct diagnostics and to act at a context-specific, microeconomic level. General patterns of factor endowments are important, but these categories are not granular enough to be of much use in analyzing the specific economic situation of locations or identifying specific policy actions. Policymakers need to understand the composition of their economies, as well as the industry-/cluster-specific barriers and enablers to growth. Macroeconomic conditions matter, but ultimately, microeconomic upgrading is needed to achieve development and structural transformation.

Second, both approaches agree that markets and policy play complementary roles. They see markets and rivalry as critical for efficient factor allocation and company sophistication. But they also see the important role of policy and collective action in shaping business environment conditions to enable market competition at higher levels of productivity.

Third, there has been convergence on the type of instruments that are being proposed. Both approaches are skeptical about interventions in the market process; they argue for more traditional investments in public goods and support for activities that generate positive externalities, including the exploration of new market opportunities.

Despite these important agreements, there are also differences in thinking that can easily lead to significant divergence in policy practice. In fact, the differences are now much less in the ‘what to do’, but ‘how to’ do it. But the ‘how’ is much more than an operational detail; it often has fundamental repercussions for the ‘what’.

Figure 5: Comparison of Development Approaches



First and most fundamentally, divergent views about composition being a key driver or a symptom of competitiveness can easily lead to opposing choices on policy instruments. The new structural economics focuses policy practitioners on the question of how to attract and nurture the next line of industries; the tools needed in terms of upgrading industry-specific competitiveness fundamentals come second. The competitiveness approach focuses instead on upgrading these fundamentals, but argues for cluster-specific steps in doing so. The difference between the two perspectives is less dramatic than between the traditional industrial policy (create an industry; the competitiveness upgrading will follow automatically) and policies to upgrade framework conditions (enhance general business environment conditions; the upgrading across and within industries will follow automatically). But the difference in approach can turn out to be quite significant in practice. In particular, policy practitioners are faced with the challenge of how to enable new industries that are 'next' on their development path. What if just providing business environment conditions aligned with the target industry is not enough? How much should firm-specific incentives be used, even if just temporary? Here the two approaches will tend to lead to different answers in practice, even if there has been a convergence of views in principle (so the related discussion in Ledermann and Maloney, 2012).

Second, the two approaches differ on the balance between cross-cutting and location/cluster-specific upgrading of the economy. Structural transformation focuses strongly on what is relevant for specific industries, and suggests the use of location specific approaches, for example the use of industrial zones (Lin, 2016). However, while the competitiveness approach also advocates cluster-specific steps, it focuses more on their role as instruments to enable upgrading of business environment conditions that often also benefit firms in the wider economy. It sees indications that many of the key competitiveness challenges are cross-cutting, related to institutional factors and more general rules of the game affecting the functioning of markets, especially at earlier stages of economic development (Delgado et al., 2012). This issue has significant practical relevance, as industrial parks have a mixed track record in spearheading such broader changes in their economies, even if they were internally successful (Zeng, 2010; Farole and Akinci, 2011).

Third, there are differences in the way government at different levels of geography are seen. The structural transformation literature focuses on the nature of the national economy and the policies set at this level. Location-specific interventions like special economic zones and industrial parks are being discussed but remain a tool of national policymakers. The competitiveness literature focuses instead on the complementary roles of different levels of government and emphasizes the role of subnational regions in both analysis and action (Ketels, 2017).

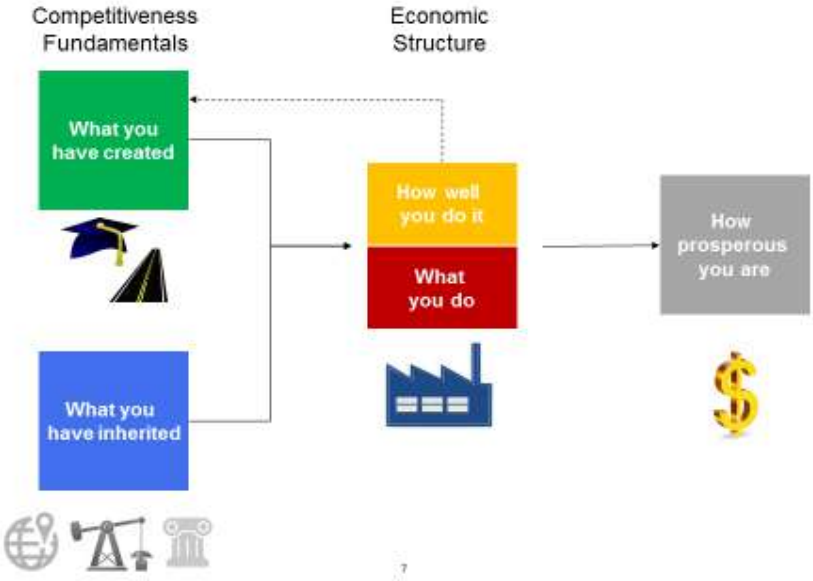
Fourth, the structural transformation approach assigns government a central role, making top-down decisions about the direction of structural change with all the political economy complexities this entails. The cluster approach tilts toward business-led activities, where groups of firms collaborate and engage with government based on the market conditions they experience. While the specific context matters, cluster efforts are an effective tool for public-private dialogue on competitiveness upgrading (Fernandez-Arias et al., 2016; Herzberg and Wright, 2006).

Finally, the new structural economics literature argues strongly for the study and emulation of the experience of similar countries. The competitiveness framework is skeptical about this advice, seeing the danger that such an approach might fail to create competitive advantages and put many developing and emerging economies onto a path of head-on competition. Instead, it argues for more thinking about strategic choice and a location's unique value proposition.

4. Conclusion

The discussion of the competitiveness framework and its relationship to the new literature on structural transformation has revealed differences, but also a significant degree of conceptual affinity. What is emerging can be described as an integrated view that captures both the role of competitiveness fundamentals and industrial composition in driving productivity and prosperity outcomes.

Figure 6: What Drives Prosperity?
Relationship between Competitiveness and Structure



Endowments from natural resources to geographic location and institutional legacies provide a unique foundation for any economy. The type of competitiveness conditions then created on this basis is, however, wide open to the actions of policy makers and many public and private entities. Together, these fundamentals give rise to economic activities at a certain level of performance in specific industries. Through these activities, prosperity is ultimately created. Activities are created through the development of new capabilities that enhance the existing competitiveness conditions and drive the presence of new industries.

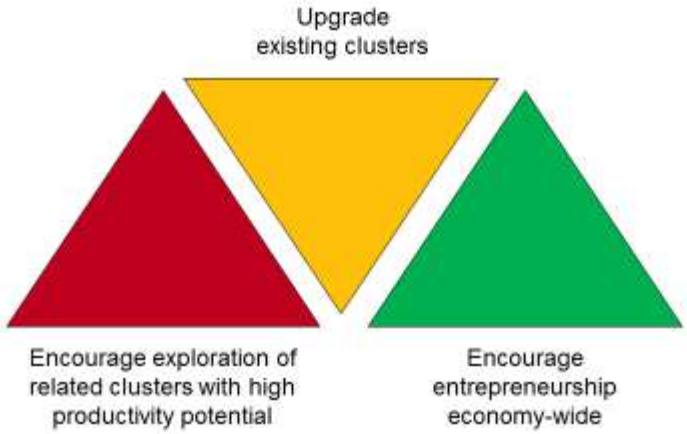
The level and sustainability of prosperity growth depend on both the upgrading happening in terms of competitiveness fundamentals and the structural changes these trigger in terms of the

composition of sectors and the sophistication of activities within them (Rodrik, 2014). Growth remains episodic if there are no sustained improvements in competitiveness fundamentals, with the possibility of one-off growth spurts related to structural change. Growth remains low if improvements in competitiveness fundamentals do not translate into structural transformation across and within sectors.

The enduring challenge is how to enable structural change in situations where the market process does not seem to be working fast enough. This is an issue for developing and emerging economies, but also for many regions within advanced economies. New structural economics proposes an approach to tackle this challenge; it suggests how to identify an appropriate direction for change and proposes some principles for how to get there. Whether those principles will work in practice remains to be seen.

Structural change and the nurturing of new sectors through cluster-based approaches have been tried. But the evidence from Europe is sobering: Cluster efforts have had an impact in upgrading existing clusters but have a much less impressive track-record in triggering transitions into new fields (Ketels and Protsiv, 2013). This observation has been a main concern, addressed by the EU regional policy's 'smart specialization' approach aimed at systematically identifying interventions that can drive transformation (Foray, 2015). It suggests a move towards a mixed approach that combines upgrading in existing clusters with the systematic exploration of opportunities in related fields, as well as efforts to encourage more generally entrepreneurship and innovation. Again, the jury is still out on how this will work.

Figure 7: Cluster-Based Structural Transformation



References

Acemoglu, Daron and Simon Johnson (2012), *"Why Nations Fail: The Origins of Power, Prosperity, and Poverty."* New York: Random House.

Aiginger K. (2015), Competitiveness: from a misleading concept to a strategy supporting Beyond GDP goals, *Competitiveness Review*, Special Issue "25 Years after the Competitiveness Advantage of Nations, December 2015.

Altenburg, Tilman, Maria Kleinz, and Wilfried Lütkenhorst (2016), *Directing Structural Change: from Tools to Policy*, Discussion Paper 24, German Development Institute: Bonn.

Asheim, Bjorn and Mark Gertler (2004), *Understanding regional innovation systems*, in: Jan Fagerberg, David Mowery and Richard Nelson (eds.), *Handbook of Innovation*, Oxford: Oxford University Press

Audretsch, David and Maryann Feldman (1996), R&D Spillovers and the Geography of Innovation and Production, *American Economic Review*, Vol. 86, 630 -640.

Barca, Fabrizio, Philip McCann, Andrés Rodríguez-Pose (2012), The case for regional development intervention: place-based versus place-neutral approaches, *Journal of Regional Science*, Vol. 52, pp. 134–152.

Bloom, Nicholas, Sadun, Raffaella, and John van Reenen (2016), *Management as a Technology?*, Harvard Business School Strategy Unit Working Paper No. 16-133; Stanford University Graduate School of Business Research Paper No. 16-27.

Boltho, A. (1995), The assessment: International competitiveness, *Oxford Review of Economic Policy*, 12 (3), 1-16.

Boschma, Ron, Lars Coenen, Koen Frenken & Bernhard Truffer (2017), Towards a theory of regional diversification: combining insights from Evolutionary Economic Geography and Transition Studies, *Regional Studies*, Vol. 51, No. 1, 31-45

Brander, James E. (1995), *Strategic Trade Policy*, NBER Working Paper 5020, NBER: Cambridge, MA.

Cung, Nguyen Dinh, Christian Ketels, Nguyen Thi Tue Anh, and Do Hong Hanh (2010), *Vietnam Competitiveness Report 2010*, ACI/CIEM: Singapore/Hanoi

De Grauwe, Paul (2010), Introduction, in: P. De Grauwe (ed.), *Dimensions of Competitiveness*, CESifo Seminar Series, MIT Press: Cambridge, MA.

Delgado Mercedes, Christian Ketels, Michael E. Porter, and Scott Stern (2012), *The Determinants of National Competitiveness*, NBER Working Paper 18249, National Bureau of Economic Research, Cambridge, MA.

Delgado, Mercedes, Michael E. Porter, and Scott Stern (2010), Clusters and Entrepreneurship, *Journal of Economic Geography*, Vol. 10:4, 495 – 518.

Delgado, Mercedes, Michael E. Porter, and Scott Stern (2014), Clusters, Convergence and Economic Performance, *Research Policy*, Vol. 43, 1785–1799.

Delgado, Mercedes, Michael E. Porter, and Scott Stern (2016), Defining Clusters of Related Industries, *Journal of Economic Geography*, Vol. 16:1, 1 – 38.

Dijkstra, Lewis, Paola Annoni, and Kornelia Kozovska (2011), *A New Regional Competitiveness Index: Theory, Methods and Findings*, Working Paper 2/2011, Brussels: European Commission

Duranton, Gilles (2011), California Dreamin': The Feeble Case for Cluster Policies, *Review of Economic Analysis*, Vol. 3(1), 3-45.

Fagerberg, Jan (2011), *Domestic demand, learning, and the Competitive Advantage of Nations: a review of the empirical evidence*, in: R. Huggins, H Izushi (eds.), *Competition, Competitive Advantage, and Clusters*, Oxford University Press: Oxford.

Farole, Thomas, Ghokan Akinci (eds., 2011), *Special Economic Zones: Progress, Emerging Challenges, and Future Direction*, World Bank: Washington, D.C.

Fernandez-Arias, Eduardo, Charles Sabel, Ernesto Stein, and Alberto Trejos (2016), *Two to Tango: Public-Private Collaboration for Productive Development Policies*, Inter-American Development Bank: Washington, D.C.

Foray, Dominique (2015), *Smart Specialization: Opportunities and Challenges for Regional Innovation Policy*, Routledge Publishing: Abingdon, U.K.

Frankel, Jeffrey (2010), *The Natural Resource Curse: A Survey*, RWP10-05, Harvard Kennedy School of Government: Cambridge, MA.

Gollin, Douglas, Rémi Jedwab, and Dietrich Vollrath (2013), *Urbanization with and without Structural Transformation*, Mimeo.

Goni, Edwin, William F. Maloney (2014), *Why Don't Poor Countries do R&D?*, World Bank Policy Research Paper 6811, World Bank: Washington, D.C.

Gordon, Robert M. (2011), *National economic development and The Competitive Advantage of Nations*, in: R. Huggins, H Izushi (eds.), *Competition, Competitive Advantage, and Clusters*, Oxford University Press: Oxford.

Hall, R. E., C. I. Jones (1999), Why Do Some Countries Produce So Much More Output per Worker than Others?, *Quarterly Journal of Economics* 114 (1), 83-116.

Hausmann, Ricardo, César A. Hidalgo, Sebastian Bustos, Michele Coscia, Alexander Simoes, Muhammed A. Yildirim (2013), *The Atlas of Economic Complexity: Mapping Paths to Prosperity*, Harvard University/MIT: Cambridge, MA.

Hausmann, Ricardo, B. Klinger (2007), *The Structure of the Product Space and the Evolution of Comparative Advantage*, CID Working Paper No. 146, Harvard Kennedy School of Government: Cambridge, MA.

Hausmann, Ricardo, Dani Rodrik, and Andres Velaso (2005), *Growth Diagnostics*, Harvard Kennedy School Working Paper, Harvard Kennedy School of Government: Cambridge, MA.

Herrendorf, Berthold, Richard Rogerson, and Ákos Valentinyi (2014), *Growth and Structural Transformation*, Philippe Aghion, Steven N. Durlauf (eds.), *Handbook of Economic Growth*, Volume 2B, 855 – 941, Elsevier Publisher.

Herzberg, Benjamin, Andrew Wright (2006), *The Public-Private Dialogue Handbook: A Toolkit for Business Environment Reformers*, World Bank: Washington, D.C.

IADB (2010), *The Age of Productivity: Transforming Economies from the Bottom up*, Inter-American Development Bank: Washington, D.C.

Imbs, Jean, Romain Wacziarg (2003), Stages of Diversification, *American Economic Review*, Vol. 93(1), 63-86.

Kang, Kim-Song, Sock-Yong Phang (2005), *From Efficiency-Driven to Innovation-Driven Economic Growth: Perspectives from Singapore*, World Bank Policy Research Working Paper 3569, World Bank: Washington, D.C.

Ketels, Christian (2011), *Competitiveness and Clusters: Porter's contribution*, in: R. Huggins, H Izushi (eds.), *Competition, Competitive Advantage, and Clusters*, Oxford University Press: Oxford.

Ketels, Christian (2013), *Cluster Policy: A Guide to the State of Debate*, in: Peter Meusburger, Johannes Glückler, and Edgar Wunder (eds.), *Knowledge and Economy*, pp. 249-269, Springer Publishing.

Ketels, Christian (2015), *What is Regional Strategy? Lessons from Business Strategy*, in: Valdaliso, Wilson (eds.): *Strategies for Shaping Territorial Competitiveness*, Routledge Publishers: Cheltenham.

Ketels, Christian (2016), *Competitiveness Frameworks Review*, Irish National Competitiveness Council: Dublin.

Ketels, Christian (2017), *Upgrading Competitiveness: What Role for Regional Government?*, in: Robert Huggins, Piers Thompson (eds.), *Handbook of Regions and Competitiveness*, Edward Elgar Publishing.

Ketels, Christian, Olga Memedovic (2008), From clusters to cluster-based economic development, *International Journal for Technological Learning, Innovation and Development*, Vol. 1, No. 3, 375-392.

Ketels, Christian, Sergiy Protsiv (2013), *Clusters and the New Growth Path for Europe*, WWWForEurope Working Paper No. 14, WIFO: Vienna.

Kitson, Michael, Ron Martin, and Peter Tyler (2004), Regional Competitiveness: An Elusive yet Key Concept? *Regional Studies*, Vol. 38(9), 991–999.

Krugman, Paul (1994), Competitiveness: A Dangerous Obsession, *Foreign Affairs*, Vol, 73, No. 2 (March/April), 28 – 44.

Lederman, Daniel, William F. Maloney (2012), *Does What you Export Matter?*, World Bank Group: Washington, D.C.

Lewis, William (2004), *The Power of Productivity*, Chicago University Press: Chicago.

Lin, Justin Yifu (2012), *New Structural Economics: A Framework for Rethinking Development*, World Bank: Washington, D.C.

Lin, Justin Yifu (2016), *The Quest for Prosperity: How Developing Economies Can Take Off*, Princeton University Press: Princeton.

Long, Cheryl, Xiabo Zhang (2012), Patterns of China's industrialization: Concentration, specialization, and clustering, *China Economic Review*, Vol. 23, 593–612.

Newman, Carol, John Page, John Rand, Abebe Shimeles, Måns Söderbom, and Finn Tarp (eds.) (2016), *Manufacturing Transformation*, Oxford University Press: Oxford.

McCord, Gordon C., Jeffrey Sachs (2013), *Development, Structure, and Transformation: Some evidence on comparative economic growth*, NBER Working Paper No. 19512, NBER: Cambridge, MA.

McMillan, Margaret, John Page, David Booth and Dirk Willem te Velde (2017), *Supporting economic transformation: An approach paper*, Overseas Development Institute: London.

Michaels, Guy, Ferdinand Rauch, and Stephen J. Redding (2012), Urbanization and Structural Transformation, *The Quarterly Journal of Economics*, Vol. 127, No. 2, 535-586.

Mills, Karen G., Elisabeth B. Reynolds, and Andrew Reamer (2008), *Clusters and Competitiveness: A New Federal Role for Stimulating Regional Economies*, Brookings Metropolitan Policy Program, Brookings: Washington, D.C.

Neffke, Frank, Martin Henning, and Ron Boschma (2011), How Do Regions Diversify over Time? Industry Relatedness and the Development of New Growth Paths in Regions, *Economic Geography*, Vol. 87, 237–265.

Nelson, Richard R. (1993), *National Innovation Systems: A Comparative Analysis*, Oxford University Press: Oxford.

Porter, Michael E. (1990), *The Competitive Advantage of Nations*, The Free Press: New York.

Porter, Michael E. (2000), *On Competition*, Harvard Business School Press: Boston.

Porter, Michael E. (2003), The Economic Performance of Regions, *Regional Studies*, Vol. 37, No. 6/7, 549-578.

Porter, Michael E. (2007*), Clusters and Economic Policy: Aligning Public Policy with the New Economics of Competition*, ISC Working Paper, Harvard Business School: Boston, MA.

Porter, Michael E., Willis Emmons (2003), *Institutions for Collaboration: Overview*, Harvard Business School Note 703-436, Harvard Business School: Boston, MA.

Porter, Michael E., Christian Ketels, and Mercedes Delgado-Garcia (2006), *The Microeconomic Foundations of Prosperity: Findings from the Business Competitiveness Index*, In: Augusto Lopez-Claros, Michael E. Porter, Xavier Sala-i-Martin, and Klaus Schwab (eds.), *Global Competitiveness Report 2006-2007*, Palgrave Macmillan.

Porter, Michael E., Jan Rivkin, and Rosabeth Kanter (2013), *Competitiveness at a crossroads, Harvard Business School Survey on U.S. Competitiveness*, Harvard Business School: Boston, MA.

Rodriguez-Clare, Andres (2007), Clusters and comparative advantage: Implications for industrial policy, *Journal of Development Economics*, Vol. 82, 43–57.

Rodrik, Dani (2004), *Industrial Policy for the 21st Century*, KSG Faculty Research Working Paper Series, RWP04-047, Harvard Kennedy School of Government: Cambridge, MA.

Rodrik, Dani (2007), *One Economics, Many Recipes: Globalization, Institutions, and Economic Growth*, Princeton University Press: Princeton.

Rodrik, Dani (2011), Comments on "new structural economics" by Justin Yifu Lin, *The World Bank Research Observer*, Vol. 26, No. 2, 227-229.

Rodrik, Dani (2014). The past, present, and future of economic growth, in: F. Allen, et al. (eds.), *Towards a better global economy: Policy Implications for Citizens Worldwide in the 21st Century*, Oxford University Press: Oxford.

Rodrik, Dani (2015), Premature Deindustrialization. *Journal of Economic Growth*, Vol. 21:1-33

Rodrik, Dani, Xinshen, Diao, and Margaret McMIllan (2017), *The Recent Growth in Developing Economies: A Structural-Change Perspective*, mimeo., Harvard Kennedy School of Government: Cambridge, MA.

Sala-i-Martin, Xavier et al. (2015), *Reaching Beyond the New Normal: Findings from the Global Competitiveness Index 2015–2016*, Global Competitiveness Report 2015-16, World Economic Forum: Geneva.

Sachs, J., A. Warner (2001), The Curse of Natural Resources, *European Economic Review*, Vol. 45, 827 - 838.

Shriram, Urvi, Dennis Snower and Mike Orszag (2013), *Economic Performance Index (EPI): An Industry-Centric Measurement Approach*, Global Economic Symposium, Kiel Institute for the World Economy and Towers Watson.

Solvell, Orjan, Christian Ketels, and Goran Linqvist (2003), *The Cluster Initiative Greenbook*, Ivory Tower: Stockholm.

Spolaore, Enrico; Romain Wacziarg (2012), *How Deep Are the Roots of Economic Development?*, NBER Working Paper No. 18130, NBER: Cambridge, MA.

Stiglitz, Jospeh E., Justin Y. Lin, 2013 (eds.). *The Industrial Policy Revolution I: The Role of Government Beyond Ideology*, Palgrave Macmillan: New York, NY.

Studwell, Joe (2013), *How Asia Works: Success and Failure in the World's Most Dynamic Region*, Profile Books: London.

te Velde, Dirk (2011), Introduction, DPR Debate: Growth identification and facilitation: The role of the state in the dynamics of structural change, *Development Policy Review*, Vol. 29, No. 3, pp. 259-263.

Timmer, C. Peter, Selvin Akkus (2008), *The Structural Transformation as a Pathway out of Poverty: Analytics, Empirics and Politics*, CDG Working Paper Number 150, Center for Global Development: Washington, D.C.

Valencia Caicedo, Felipe, William F. Maloney (2014), *Engineers, Innovative Capacity and Development in the Americas*, World Bank Policy Research Working Paper 6814, World Bank: Washington, D.C.

Warwick, Ken (2013), *Beyond Industrial Policy: Emerging Issues and Trends*, OECD Science, Technology and Industry Policy Papers, No. 2, OECD: Paris.

Zeng, Douglas Zhihua (2008), *Knowledge, Technology, and Cluster-Based Growth in Africa*, World Bank: Washington, D.C.

Zeng, Douglas Zhihua (ed., 2010), *Building Engines for Growth and Competitiveness in China: Experience with Special Economic Zones and Industrial Clusters*, World Bank: Washington, D.C.