The Evolving Paradigms of Structural Change

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Abstract

The notion of “structures” has evolved over the decades to cover both macro and micro issues, and to hold different meanings. In the 1940s, the focus was on market failures and the active ways in which governments could promote economy-wide change in production, such as agricultural transformation, industrialization, urbanization, and “modernization.” A second wave of thinking in the 1980s highlighted government failures, emphasizing the functioning of markets, institutions, and regulatory and incentives systems. Proponents of the “structural” adjustment programs advocated for restoring external and domestic balances, prescribing
liberalization and privatization. A third and more recent wave of literature seeks to reconcile these extremes. New Structural Economics draws lessons from history to identify factors that help or hinder the reallocation of resources from low- to high-productivity sectors. It promotes the strategic selection of competitive industries according to the comparative advantage, and recommends a new distribution of roles between governments and markets.

**Keywords:** structuralism, market failures, industrialization, government failures, stabilization, structural adjustment, New Structural Economics
Introduction

In Molière’s celebrated play *The Bourgeois Gentleman*, the climactic joke occurs when Mr. Jourdain, the main character, realizes that he has “been speaking prose all [his] life, and didn’t even know it!” Macroeconomists may have reached a similar point in their pursuit of growth and poverty reduction recipes: regardless of their stated objectives and areas of specialization, they may have been just searching for the blueprint of structural change without knowing it. Suffice it to observe the evolution of the discipline since it emerged as a specific intellectual entity in the mid-twentieth century: whether they have been studying the role of monetary and fiscal policies, the nature and importance of markets and states, or the appropriateness of the regulatory framework and other institutions, researchers and policy makers are mainly trying to decipher the “mystery of growth” (Helpman 2004)—the economic dynamics that eventually transform the economic landscape and the deep nature of societies and nations.

Their quest has not been a smooth endeavor. The strategic focus of their work has often shifted from long-run to short-run issues. Classical economists such as Adam Smith, Alfred Marshall, and Allyn Young attempted to identify the ingredients required to ignite and sustain growth. But
after World War II, the discipline moved to the study of business cycles and remained there through most of the 1970s. With the notable exception of the pioneering work of Robert Solow, for much of the twentieth century macroeconomists tended to study business cycles issues that characterized the post-war period. As they tried to better understand stabilization policies—monetary and fiscal measures to avoid disruptive and costly inflation—few resources were devoted to the analysis of the long-run determinants of growth. While there has been renewed interest in growth research in recent decades, the economic literature has not focused on making clear the linkages between growth and economic transformation. As a result, the impressive advances in methodology have not led to a consensus on the policies that allow some economies to evolve from low- to high-income status.

Structural change occurs in all countries, not just “developing” ones. But initial research about it was limited to high-income countries, for good reasons: with the advent of the Industrial Revolution and the economic takeoff of some countries in the Western hemisphere, the magnitude of transformation in Britain, the United States, France, or Germany was such that it was indeed fascinating to uncover the mechanics at work there. Research on that topic was also taking place in Japan, most notably with the work of economists such as Kaname Akamatsu. The economic trajectories of lower-income countries of Asia, Latin America, and Africa became the
subject of systematic analysis only in the 1940s and 1950s, when development thinking emerged
as a particular branch of economics.

It was then clear that modern economic development is a process of continuous change in
economic structure. Successful countries also exhibited profound structural changes. This was
subsequently confirmed by empirical evidence in the work of pioneers such as Simon Kuznets,
Hollis Chenery, and Moses Syrquin. In fact, virtually no country evolved from a low- to a high-
income status without simultaneously transforming its economy from agrarian or resource-based
towards an industry- or services-based economy. Therefore, the main intellectual challenge for
economics was (and remains) to understand why so few countries have managed to engineer
such structural transformation.

The economic notion of “structures” has evolved over the decades to cover both macro and
micro issues, and to hold different meanings. In the 1940s, a first wave of researchers working
on low-income countries conceived development to be an interrelated set of long-run processes.
Their focus was therefore on structural change in production structure and on economy-wide
phenomena such as agricultural transformation, industrialization, urbanization, and
“modernization.” Leading that group, Kuznets (1966) studied the genesis and patterns of
evolution of modern economic growth in high-income countries and approached structural analysis mainly through the lens of sectoral changes—that is, the evolution over time of the relative contributions of agriculture, industry, and services to gross domestic product (Syrquin 1988).

A second wave of development thinking dominated policy making in low-income countries in the 1980s and 1990s, and tackled structural analysis indirectly. Like Mr. Jourdain in Molière’s play, economists in that group approached structural change almost inadvertently, through broad examination of the general functioning of economies, their markets, institutions, mechanisms for allocating resources, regulatory and incentives systems, etc. The proponents of the “structural” adjustment programs implemented in many developing countries viewed the restoration of external and domestic balances as an essential precondition for launching the process of economic transformation and change.

A third and more recent wave of the development literature has sought to refine structural analysis and bring back on the agenda some of the specific issues of the process of economic transformation: a rethinking of the distribution of roles between the government and the private sector; the strategic selection of competitive industries according to the comparative advantage
of developing countries; the determinants of the dynamics of sectoral contributions to growth; the evolution of the capital intensity of sectors over time—within and across countries; the factors that help or hinder the reallocation of resources from low- to high-productivity sectors and the policy environment that facilitates such changes; the processes that allow economies to move up the value chain; the various ways of organizing and fostering the adaptation and adoption of new technologies in poor countries; the determinants of a country’s ability to create employment; and the institutional arrangements that are necessary to support structural transformation, especially in the context of low-income countries where infrastructure, skills, and long-term financing are scarce.

The remainder of this chapter is organized as follows: The next section reviews the initial focus of early economic structuralists on market failures and highlights their sometimes disappointing results. The following section explains how the second wave came to dominate policy discussions in developing countries, but also failed to generate sustained and inclusive growth. The final section introduces the third and latest wave of analysis on structural change, which draws lessons and inspiration from all previous intellectual currents. It stresses the notion that underdevelopment should no longer be viewed as lack of some indispensable factor (human capital, physical capital, financing, administrative capacity, governance, etc.) but as the
reflection of development strategies that were not centered on comparative advantage of the existing endowment structure.

**First wave: the focus on market failures**

Early development economists² borrowed the notion of “structures” from other social scientists in the 1940s. They used it to design a first set of theories for growth and prosperity. Their focus was on market failures, which they identified as fundamental constraints to structural change in developing countries. They advocated state-led industrialization and inward-looking policies to achieve the modernization of poor countries. We refer to that early approach as “Development Economics 1.0.”

While numerous variants of early economic structuralism³ can be traced to a very diverse body of work that spans over a century (from Karl Marx, David Ricardo, and John Maynard Keynes to Michal Kalecki, Joan Robinson, Richard Nelson, and Sidney Winter), the fundamental assumption of all its various schools of thought is that “an economy’s institutions and distributional relationships across its productive sectors and social groups play essential roles in determining macro behavior” (Taylor 2004: 1). They initially put forth the proposition that the
world economy was composed of two poles (a homogeneous and diversified “center” facing a heterogeneous and specialized “periphery”) with fundamentally different production structures.

They identified economic activities of very different nature that existed side by side in the “periphery” (developing countries), with an export sector of relatively high productivity of labor, and a subsistence agricultural sector of very low productivity. They hypothesized that poor economies had to specialize in the production of a few commodities whose exploitation could not generate any forward or backward linkages. They conjectured that poor economies were trapped into an external disequilibrium and could occupy only a marginal space on the international scene (especially given the long-term trend of declining terms of trade). As a result, they argued, these peripheral economies would not undergo the kind of transformation process that leads to modernization and prosperity.

Early structuralists also argued that because of structural rigidities and coordination problems in developing country markets, the modern heavy industries were unable to develop spontaneously there. They suggested that the virtuous circle of development depended essentially on the interaction between economies of scale at the level of individual firms and the size of the market. Specifically, they assumed that modern methods of production can be made more productive
than traditional ones only if the market is large enough for their productivity edge to compensate for the necessity of paying higher wages. Yet the size of the market itself depended on the extent to which these modern techniques were adopted. Therefore, if the modernization process could be started on a very large scale, then the process of economic development would be self-reinforcing and self-sustaining. If not, countries would be trapped into poverty indefinitely (Rosenstein-Rodan 1943).

The focus on economic structures across all the currents of structuralism was always in sharp contrast to the initial neoclassical thinking, which assumed the existence of rational actors in perfectly competitive markets and emphasized only the need for well-functioning markets and institutions. As Gibson observes, “For orthodox economists, why the advanced countries were rich and the developing economies were poor depended only upon the amount of capital per unit of labor and subsequent labor productivity. Both could increase their income per capita by the same means, and relatively independently. The world as a whole would be better off with free trade with both poles pursuing their own comparative advantage.” (Gibson 2003: 55). In other words, early structural economics aimed at building a theoretical framework for thinking about development with stronger ethical foundations and more realistic assumptions, some of which were subsequently acknowledged by neoclassical economists.⁴
The distinguishing feature of their framework was the notion that macroeconomics must relate to
the institutional structure of an economy and the perceived behavioral patterns of households and
firms, and that economics must be constructed directly in terms of aggregates such as household
consumption, business investment, total exports, etc., not from optimizing decisions made by
individual “agents.” These features stood in sharp contrast to the basic assumption of
neoclassical economics—the mainstream interpretation of Adam Smith—that businesses and
consumers act rationally to maximize in one case their own profit,s and in the other case their
own welfare. As Chenery later observed, “The structuralist approach attempts to identify specific
rigidities, lags, and other characteristics of the structure of developing economies that affect
economic adjustments and the choice of development policy” (1975: 310). Initially, there was no
formal modeling, but the so-called dual economy and two-gap models gradually came to express
the different internal structures in low- and high-income countries. In reaction to strong
challenges and criticism from neoclassical economists, later generations of structuralists
improved the initial theoretical framework—and branded themselves “neo-structuralists” in the
late 1980s and early 1990s.
Why didn’t early structuralists express their views more systematically in formal models? Some of them were skeptical of econometrics for the reason that classical statistical theory tends to impose stringent requirements on data—especially good time series—that were not always available in many developing countries. Moreover, early structuralists wanted to explain complex economic phenomena, which could not be captured realistically using models with one, two, or very few variables in so-called “reduced form.” Another possible explanation offered by Krugman (1995) is that their theories rested critically on the assumption of economies of scale, which virtually nobody at the time knew how to put into formal models. The essential theoretical problem they faced was that of market structure. For nearly a century (at least until the mid-1970s), economists only really knew how to model formally perfectly competitive economies, those in which firms take prices as given rather than actively trying to affect them. There was a standard theory of the behavior of an individual monopolist who faced no comparably-sized competitors, but there was no general theory of how oligopolists (firms that have substantial market power but also face large rivals) would set prices and output. Moreover, there was no general approach to modeling the aggregate behavior of a whole economy largely peopled by oligopolistic rather than perfectly competitive industries. Only since the mid-1970s have economists overcome such methodological barriers, and in a number of fields: international
trade, economic growth, and, finally, development. But the limited use of formal models certainly helped invalidate the work of many pioneers of development thinking.5

There was broad agreement within the various groups of early structuralist economists on the diagnostic that market failures were the main problem of developing countries. However, there was divergence as to what specific policies to implement in order to break out of the trap and start the virtuous cycle. Rosenstein-Rodan seemed to indicate that a “Big Push” (large and coordinated government investment program) was the solution. Others such as Hirschman suggested instead an “unbalanced” approach to growth approach, that is, the promotion of key economic sectors with strong linkages, and subsequent correction of the disequilibrium generated in other sectors by these investments. Still, many developing country governments regarded economic growth as their direct and prime responsibility. Eventually, many influential multilateral institutions such as the World Bank adopted structuralist economic thinking in their approach to development.

While some developing countries that adopted policies from the early structuralists managed to launch their industrialization programs and build human capital, the results were generally disappointing. Instead of undergoing the kind of structural changes described by Kuznets and
converging to the developed countries’ income levels, most developing countries stagnated or
even witnessed a deterioration of their income gap with developed countries. In many developing
countries in Latin America, Africa, the Middle East, and South Asia, well-intended government
interventions failed in the 1960s and 1970s when import substitution and protection were
essential features of the development strategy. The main reason was the pervasive involvement
of the state in activities that were far from their country’s comparative advantage.

Many former socialist and developing countries could not achieve structural transformation
because they gave priority to development of capital-intensive heavy industry in the 1950s, when
capital in their economies was scarce. In order to implement a development strategy that defies
its comparative advantage, a developing-country government has to protect numerous non-viable
enterprises; however, because these governments usually have limited tax-collection capacities,
such large-scale protection and subsidies could not be sustained with their limited fiscal
resources. The government had to resort to administrative measures—granting the non-viable
enterprises in prioritized industries a market monopoly, suppressing interest rates, over-valuing
domestic currency, and controlling prices for raw materials—to reduce the costs of investment
and operation of the non-viable enterprises. Such intervention caused widespread shortages in
funds, foreign exchange, and raw materials. The government had to allocate resources directly to
these enterprises through administrative channels, including national planning in the socialist
countries and credit rationing, investment, and entry licensing in non-socialist developing
countries (Lin 2009).

As government-led economic development strategies, based on the early structuralist teachings,
failed in many countries, neoclassical economics appeared to triumph and to influence
development thinking. Not surprisingly, its focus was on government failures.

**Second wave: the focus on government failures**

The failure of the first wave of early structuralist economics to achieve its stated aim of
eliminating the income gap between poor and rich countries led to the return of neoclassical
orthodoxy in development thinking in the 1970s and 1980s. In the aftermath of the first oil shock
and a radical questioning of Keynesian economics, a group of development experts—mainly
within the World Bank and the International Monetary Fund—redefined the recipe for sustained
growth and structural changes in poor countries as a two-pronged strategy involving
macroeconomic stabilization and structural adjustment policies. That new framework, which
came to be known as the Washington Consensus, represented the second wave of development
thinking—"Development Economics 2.0". While it underwent some variations, it became the blueprint for economic transformation in many developing countries. Unfortunately, its results were also disappointing.

**Development Economics 2.0: the reinvention of orthodoxy**

The rationale for the change in the development paradigm was based on a neoclassical interpretation of the economic trajectories of most poor countries that attempted state-led industrialization strategies and the “dirigist dogma” (Lal 1985) advocated by the structuralists.

That story of the failure of these previous experiences focused on government failures. It went something like this: in the early sixties, most of the newly independent countries benefited from a rapid rise in the value of their exports, which led to an increase in their foreign exchange and government revenues. That surge in income stimulated ambitious public policies aiming at increasing both investment and consumption. The poor state of infrastructure and the large social needs of the population (especially in the areas of education and health) who had suffered centuries of slavery and colonization often justified these policies.
However, investments were over-sized and ill-designed. Fueled by the nationalistic dream of the new political leaders, some big projects and programs dominated government plans—often conceived on the model of the Soviet Gosplan, regardless of the ideological background of the ruling elites. These projects and programs also generated large current expenditures, as they required a large number of civil servants with salary levels often equivalent to ten times the average income per capita, or high levels of operation and maintenance spending. Furthermore, for ideological, political, and sometimes economic reasons, and also for reasons of pure greed, some countries opted for the nationalization of substantial segments of the production apparatus. They were encouraged along this direction by the ease with which they could obtain foreign loans (owing to abundant international liquidity).

By the 1970s, many private American, European, and Japanese banks had at their disposal important deposits from members of the Organization of Petroleum Exporting Countries (OPEC) cartel—so-called “petrodollars.” Acting under the assumption that countries cannot go bankrupt, these banks made risky loans that were used to finance mega investment projects with little or no economic rationale, or imports of luxury goods, or were simply misused to fund personal bank accounts overseas. Yet by the early 1980s the situation had changed considerably. OPEC had become less effective as a cartel, which drove oil prices down and substantially reduced
petrodollars held as deposits in Western banks. Also, the United States, the world’s dominant economy, was pursuing fiscal policy centered on large tax cuts and big buildup in military spending. The combination of these two factors (the limited availability of petrodollars on the international lending market and the need for funds to finance the large U.S. fiscal deficit) drove interest rates upward. To make matters worse, the world economy faced a major recession in the early 1980s after the Iranian Revolution and the ensuing oil crisis, and commodity prices on which developing countries relied for foreign exchange fell to historic lows. Confronted with the rapid increase of interest rates on their variable-rate loan repayments, these countries were on the verge of default on their external debt. Since the loans they obtained in the 1970s were used to pay for politically motivated projects or expensive luxury goods—not productive investments—only one option was left to them: turn to multilateral financial institutions like the World Bank and the IMF for help.

In macroeconomic terms, the evolution of developing countries was summarized as follows: after independence, many of them quickly experienced a persisting imbalance between aggregate domestic demand and aggregate supply, and this was reflected in a worsening of their external payments and an increase in inflation. In certain cases, the main explanation was the importance of external factors such as an increase in foreign interest rates or an exogenous deterioration in
terms of trade. But in most cases, the so-called demand-supply imbalance could be traced to the inappropriate government policies that expanded domestic demand (consumption, investment) too rapidly relative to the productive capacity of the national economy.

That diagnostic rested on the contention that state-sponsored development strategies necessarily give rise to incorrect relative prices in poor economies and distort incentives. The logical conclusion was therefore to correct the mistaken policy recommendations from the past by bringing back the fundamental precepts of the free market economy. That led to the reinvention of the neoclassical orthodoxy.

**Fighting the “global apartheid”**

The focus on government failures by mainstream development economists led to the design and implementation of a policy framework known as structural adjustment programs (SAPs). They emerged from the Bretton Woods institutions and centered on the elimination of macroeconomic imbalances of developing countries as a required passage towards sustainable growth and structural change. SAPs thus combined two overlapping objectives:
(i) stabilization, defined as the reduction of national expenditure to bring it in line with national output or income; this implied adopting policies that lower the rate of inflation, reduce the current account deficit, restore external competitiveness, and limit the loss of international reserves; and

(ii) structural adjustment, defined as an increase in national income and output through a more efficient use of resources. This basically meant implementing policies to increase the productive capacity of the national economy and to improve the efficiency with which the country’s resources were utilized. Macroeconomic success was to be achieved when the economy reached domestic balance (loosely defined as full employment without large distortion in economic policies) and external balance (a sustainable position of the current account balance).

The new policy framework relied on the belief in the virtues of market economy, the importance of macroeconomic discipline, and the need for all economies to open up to trade and foreign direct investment. These basic ideas also constitute the foundations of what Williamson (1990) called “the Washington Consensus.” Even though this particular term was coined only to describe the set of ideas that “most people in Washington believed Latin America (not all countries) ought to be undertaking as of 1989 (not all the time),” it became the new blueprint for
Williamson subsequently listed the ten reforms around which economic transformation and structural change should be organized. His comments deserve to be quoted extensively:

“These are ideas that had long been regarded as orthodox so far as OECD countries are concerned, but there used to be a sort of global apartheid which claimed that developing countries came from a different universe which enabled them to benefit from: inflation (so as to reap the inflation tax and boost investment); a leading role for the state in initiating industrialization; and import substitution. The Washington Consensus said that this era of apartheid was over.” (Williamson 2002)
“1. *Fiscal Discipline.* This was in the context of a region where almost all the countries had run large deficits that led to balance of payments crises and high inflation that hit mainly the poor because the rich could park their money abroad.

2. *Reordering Public Expenditure Priorities.* This suggested switching expenditure in a pro-poor way, from things like indiscriminate subsidies to basic health and education.

3. *Tax Reform.* Constructing a tax system that would combine a broad tax base with moderate marginal tax rates.

4. *Liberalizing Interest Rates.* In retrospect I wish I had formulated this in a broader way as financial liberalization, and stressed that views differed on how fast it should be achieved.

5. *A Competitive Exchange Rate.* I fear I indulged in wishful thinking in asserting that there was a consensus in favor of ensuring that the exchange rate would be competitive, which implies an intermediate regime; in fact Washington was already beginning to subscribe to the two-corner doctrine.
6. Trade Liberalization. I stated that there was a difference of view about how fast trade should be liberalized.

7. Liberalization of Inward Foreign Direct Investment. I specifically did not include comprehensive capital account liberalization, because that did not command a consensus in Washington.

8. Privatization. This was the one area in which what originated as a neoliberal idea had won broad acceptance. We have since been made very conscious that it matters a lot how privatization is done: it can be a highly corrupt process that transfers assets to a privileged elite for a fraction of their true value, but the evidence is that it brings benefits when done properly.

9. Deregulation. This focused specifically on easing barriers to entry and exit, not on abolishing regulations designed for safety or environmental reasons.
10. Property Rights. This was primarily about providing the informal sector with the ability to gain property rights at acceptable cost.”

(Williamson 2002)

Some dissenting voices argued that the Washington Consensus was theoretically flawed (Hoff and Stiglitz 2001, Stiglitz 1998). Others noted that its policy prescriptions did not include crucial elements for growth and structural change such as human capital or institutions, and that there was a need for an “augmented” version of the Washington Consensus (Rodrik 2006). Empirical studies have shown that in terms of sustained growth and structural transformation, their results were at best controversial (Easterly, Loayza, and Montiel 1996).

**Third wave: explaining the mystery of change**

The disappointing results of several decades of development economics have led to a soul-searching exercise among researchers, many of whom are still looking for something that might be missing in or even wrong with poor countries. In their desperate quest for answers, they have identified a long list of often contradictory factors to make that case. The list includes the
apparent inability of poor countries to solve their structural deficit in capital or to attract sufficient foreign aid for the required “Big Push” (Sachs 2005); their excessive and wasted foreign aid that may have profoundly distorted policy incentives in poor countries (Easterly 2006; Moyo 2009); the general geography of poor countries, many of which are landlocked; their high level of ethnic fractionalization, which they see as an unshakable source of tensions that slow economic performance; or their prevailing cultural practices, which some found unsuited for sustained economic performance. Many such arguments were made several decades ago to explain the pervasive poverty in Asia, and even to predict why countries such as Japan, Korea, or China might never be capable of overcoming their poverty traps.6 History has not been kind to such deterministic approaches to economic development.

Many important intellectual initiatives have been launched in recent decades to reassess development theories, policies, and practices (Meier and Stiglitz 2001; World Bank 2005; Commission on Growth 2008). The temptation has been strong for proponents of the various schools of thought to stick to their initial theories and defend the validity of their analysis, to turn the focus on the inconsistencies of competing theories, or even to blame the poor implementation records of their “good” policy recommendations by failing developing countries. Early structuralists (even those using more rigorous analytical frameworks of analysis) and Keynesians
have tended to stress the persistent market failures that prevent developing countries to break out of their low-level equilibrium (Taylor 1983, 1991, 1992, 2004) while neoclassical economists have pointed to the pervasive government failures that maintain a bad business environment and ineffective policy frameworks in countries in need for investment (Hubbard and Duggan 2009, Krueger 2004). A third wave of development thinking is currently underway, which builds on both early structuralists and neoclassical economists. Drawing lessons from history and economic analysis, it aims to reconcile insights from previous brands of development knowledge and to provide policy-makers in all low-income countries with a practical framework for identifying sectors and industries that are consistent with their comparative advantage, and facilitating the process of structural change.

**Revisiting the analytics of economic transformation**

The third wave of development thinking aims to return to the true meaning and dynamics of structural transformation. Its theoretical foundations can be found in a large corpus of interrelated themes that includes: the economics of information; the economics of ideas and diffusion of knowledge; the problem of agglomeration; and (perhaps most important) the problems of coordination and externalities.
Stiglitz, who pioneered the economics of information, explained in his Nobel lecture how his encounter of developing country issues forced him to reassess his own views:

“My first visits to the developing world in 1967, and a more extensive stay in Kenya in 1969, made an indelible impression on me. Models of perfect markets, as badly flawed as they might seem for Europe or America, seemed truly inappropriate for these countries. But while many of the key assumptions that went into the competitive equilibrium model seemed not to fit these economies well, the ones that attracted my attention was [sīc] the imperfection of information, the absence of markets, and the pervasiveness and persistence of seeming dysfunctional institutions.” (Stiglitz 2001)

It was not just the discrepancies between the standard neoclassical competitive model and its predictions that were being questioned. The model was not robust—even slight departures from the underlying assumption of perfect information had major analytical and policy consequences. In many areas of public policy (such as education and wage determination), the notion that had underlain much of traditional competitive equilibrium analysis—that markets had to clear—was simply not true if information was imperfect.
For centuries, the most dominant idea in mainstream economics, which provided both the rationale for the reliance on free markets and the belief that issues of distribution can be separated from issues of efficiency, was that competitive economies lead, as if by an invisible hand, to a (Pareto) efficient allocation of resources, and that every Pareto efficient resource allocation can be achieved through a competitive mechanism—provided only that the appropriate lump sum redistributions are undertaken. That big idea, still the fundamental theorem of welfare economics, also allowed economists the freedom to push for reforms which increase efficiency, regardless of their seeming impact on distribution. As Stiglitz noted, “the economics of information showed that neither of these results was, in general, true.” Moreover, asymmetries of information have been shown to be related to absent or imperfect markets. They help explain why markets for used cars as famously shown by Akerlof (1970), or for credit or for labor tend to work imperfectly. Information imperfections are pervasive in the economy and neither sustained economic growth nor structural change is possible without a reliable mechanism to address them (Greenwald and Stiglitz 1986). The fact that when there are asymmetries of information, markets are not, in general, constrained Pareto efficient implies there is a potentially important role for government (Stiglitz 1997).
That insight also opens up an avenue to discuss the economics of ideas and diffusion of knowledge, which is typically considered a particular form of information. Many of the issues that are central to the economics of information and to the process of structural transformation—such as the problems of appropriability, the fixed costs associated with investments in research that give rise to imperfections in competition, and the public good nature of information—also point to the crucial role of the government in economic development. “Nations are poor because their citizens do not have access to the ideas that are used in industrial nations to generate economic value,” Romer observed (1993a: 543). Developing countries remain trapped in poverty because households and firms there have not been able either to invent new ways of making better goods and services or to copy and use new industrial and technological tools available elsewhere to improve their productivity levels. “In a world with physical limits, it is discoveries of big ideas, together with the discovery of millions of little ideas, that make persistent economic growth possible. Ideas are the instructions that let us combine limited physical resources and arrangements that are ever more valuable” (Romer 1993b: 64).

Another theoretical justification for the role that governments must play to foster sustained growth and structural transformation is found in the economics of agglomeration. Since the puzzling observation made by Balassa (1966) on the rise of the intra-industry trade in Europe in
the 1950s that each country produced only part of the range of potential products within each industry, importing those goods it did not produce (because specialization in narrower ranges of machinery and intermediate products permits the exploitation of economies of scale through the lengthening of production runs), new trade theorists have highlighted the fact that unexhausted economies of scale at the firm level necessarily imply imperfect competition. They have shown that increasing returns have been a powerful force shaping the world economy, and developed general equilibrium models of imperfect competition that confirm Marshall’s trinity of reasons for industry localization: knowledge spillovers, labor market pooling, and specialized suppliers.\(^7\)

For developing countries that must rely on trade as their main source of growth in an increasingly globalized world, the policy implications of these theoretical analyses are clear: it is essential that their governments be willing and capable of solving the coordination and externalities issues that prevent agglomeration of firms and activities from taking place (Rodrik 2007; Harrison and Rodriguez-Clare 2009).

An influential perspective based on non-linearities is the Growth Diagnostics approach suggested by Hausmann, Rodrik, and Velasco (2008). It is motivated by the inability of governments to reform everything and thus the need to prioritize reforms, which is done through the information revealed by shadow prices. It recognizes the central role of structural change in economic
development and argues that in each country there are “binding constraints” on growth, implying that failure in one dimension prevents growth even if the others are all satisfactory. Through time and across countries those binding constraint can vary. Identifying them is the prerequisite to successful policy making.

While it is a good systematic approach to consider the government’s policy interventions in a distorted second-best world, in practice, the binding constraints are related to the new industries that the country is attempting to develop, and the approach argues that choices of new industries should depend on a self-discovery process by individual firms. Hence the identification of binding constraints is more an “art” than a “science”. Moreover, the proponents of the growth diagnostics oppose the use of comparative advantage as a basic reference in the identification of new industries (Rodrik 2004). The industries that governments select through this process are likely to have the same characteristics as those targeted by the structuralist approach and are not viable in a competitive market. More distortions to the market, similar to those introduced by the import-substitution strategy, may be created as a result.

A related but somewhat different framework that explicitly recognizes the importance of structural change and suggests policies to facilitate that change is the product-space method
proposed by Hidalgo et al. (2007) and Hidalgo and Hausmann (2009). It posits that economic progress occurs because countries upgrade what they produce. In doing so, they move from their current products to other, usually more sophisticated, related products. The more closely related the product lines, the easier it is for countries to make progress. Relatedness is associated with the similarity in the inputs required by a certain activity, including everything from particular skills and institutional and infrastructural requirements to technological similarity and the like. So the product-space metaphor refers to how this process of moving from one product to another works in the real world.

**New Structural Economics**

Within the third wave, the New Structural Economics (NSE) approach to development (Lin 2012; Lin and Monga 2011; Monga 2012) points to the fact that almost all previous waves of development thinking on structural change have been conceived on the basis of a required list of ingredients considered indispensable for sustained growth and structural change. Economic failure has thus been analyzed as a lack of some factor or variable. Development economics in the past often focused on what developing countries did not have and could not do well: early structuralists and other proponents of “Development 1.0” theories focused on market failures and
the lack of capital of poor countries, and doubted that the “periphery” could compete successfully with the “center.” As a result, they advocated inward-looking policies that eventually failed to foster convergence. In reaction, neoclassical economists and proponents of “Development 2.0” identified another list of missing elements which they thought were absolutely necessary for sustained growth to be ignited (macro stabilization, sound money, free markets, good governance, well-functioning delivery systems for projects).

While economic development certainly necessitates some minimal conditions (social peace and stability, and a relatively well-functioning state), the NSE contends that a radically different mindset must be adopted by development economists and policy-makers in poor countries. Consistent with the intellectual posture of philosophical pragmatism, it argues that structural change and economic development can take place anywhere—including in poor, landlocked countries with no natural resources, limited physical and human capital, and sub-optimal governance—provided that a realistic strategy that makes the best use of the country’s unique set of assets at that given time be implemented. It therefore advocates an approach to structural change based not on the long list of missing ingredients for a first-best development scenario (good business environment, good governance, adequate domestic capacity, etc.) but on what any poor country has at a given moment (that is, its endowments) and what it can do well (that is,
comparative advantage). As part of this process, the government should play an active role in helping the private sector scale up what the country can do well now.

Economic development is indeed a process of sustained increase in per capita income, which requires a continuous upgrading of industries and technology from labor (resource)-intensive industries to more capital-intensive industries (otherwise, per capita income will stagnate, as predicted by Solow’s neoclassical growth model). It is a gradual process from the lower to the higher end of the spectrum, and countries can move to many intermediate levels. Developing countries have the advantage of backwardness and a whole spectrum of industries with different levels of capital intensity available to them. Because the industrial structure in an economy is endogenous to its relative abundance of labor, capital, and natural resources, the speed of industrial upgrading and development depends on the speed of its upgrading of factor endowments as well as the required corresponding improvement of “soft” infrastructures (institutions) and “hard” infrastructures (physical capital).

At each particular level of development, the production structure will be different, as will each type of infrastructure. The upgrading is an innovation and unavoidably risky. Successful upgrading requires that the firms in the economy overcome issues of limited information
regarding which industries are viable. Successful upgrading often requires related investments by other firms (Murphy, Shleifer, and Vishny 1989), and required changes in soft and hard infrastructures. And, in addition, valuable information externalities arise from knowledge of pioneer firms’ success and failure. Therefore, in addition to playing a proactive role in the improvements of soft and hard infrastructures, the government in a developing country can also adopt an industrial policy to assist firms in a market economy to overcome the above issues (Lin 2009; Rodrik 2004).

The practical implementation framework associated with the NSE suggests that policy-makers identify tradable industries that have performed well in growing countries with similar resources and skills, and with a per capita income about double their own. If domestic private firms in these sectors are already present, policy-makers should identify and remove constraints on those firms’ technological upgrading or on entry by other firms. In industries where no domestic firms are present, policy-makers should aim to attract foreign direct investment from the countries being emulated or organize programs for incubating new firms.

The government should also pay attention to the development by private enterprises of new and competitive products, and support the scaling up of successful private-sector innovations in new
industries. In countries with a poor business environment, special economic zones or industrial parks can facilitate firm entry, foreign direct investment, and the formation of industrial clusters. Finally, the government might help pioneering firms in the new industries by offering tax incentives for a limited period, co-financing investments, or providing access to land or foreign exchange.

**Conclusion**

This chapter has identified and chronicled three broad waves of development thinking on the important issue of structural change, which is central to sustained growth, job creation, and poverty reduction. Successful countries have almost always undergone structural change, while unsuccessful ones have not. For developing countries the challenge has always been to design and implement economic policies geared towards a careful analysis of the changing patterns of industrial structure and technology diffusion, to appropriately select and foster the development of industries in which private firms can strive because they are in the country’s comparative advantage.
Early development thinkers who took up the challenge of devising economic strategies for low-income countries in the 1940s through the 1960s identified market failures as the main obstacles to prosperity. They faced some big questions, which are still on the agenda of development thinking today: What mysterious processes are at play in countries that are able to break out of the poverty trap and gradually change the fundamental nature of their economies? What policies and institutions facilitate the dynamics of sectoral transformation? Within agriculture, services, or industry, how does the process of moving into higher quality goods and services happen? How do economies move up the value chain? What determines a country’s ability to create good jobs? What is the appropriate role for governments and markets in the growth and structural transformation dynamics? Their choice of inward-looking strategies generally failed to deliver results.

The second wave of development experts that dominated policy making in the 1980s and 1990s turned to government failures as the main cause of failure. Consistent with neoclassical principles, they advocated free market policies for all low-income countries, with some subsequent variations (human capital institutions). While it advocated macroeconomic stabilization and “structural” adjustment policies, that second wave neglected the deeper issues of structural transformation, which implies a strategic selection of industries that can ignite long-
term changes in a country’s endowment structure and production capabilities. The results of these policies were also disappointing.

There has been a robust debate on the intellectual legacy of all these earlier waves of economic thinking on structural change. Disagreements over the pertinence of its main assumptions, frameworks of analysis, and policy recommendations are likely to continue for a long time. But a set of stylized facts have emerged from empirical observation, which makes it a legitimate and useful approach to economic development and economic thinking. Ocampo et al. (2009) provide a comprehensive exposition of these stylized facts. Two of them stand out: (i) The lack of economic convergence (neither absolute nor relative) among countries in the past two centuries appears to contrast with the bold predictions of orthodox models of growth. That also invalidates the notion that all countries may eventually reach similar income levels by pursuing similar policy frameworks, regardless of their initial economic structure. (ii) International factors play a crucial role in the overall growth dynamics of the developing world—much more so than in high-income countries. This finding, too, weakens the traditional neoclassical emphasis on domestic policies and institutions as the primary determinants of economic performance.
Drawing lessons from history and economic analysis, the third wave of development thinking has sought to put structural analysis and comparative advantage center stage. It suggests new ways in which all developing countries—regardless of their natural resources, location, or amount of capital—can break into global industrial markets and find their own niche, or organize their economies to take advantage of the opportunities being vacated by middle-income countries that are forced out of their niche because of rising wages, rising productivity levels, and the need for industrial upgrading. Unlike previous theories of economic development, the new wave does not focus on the list of missing ingredients. Instead, it provides a blueprint for making the most of the existing assets and endowment structure of any country. As such, it offers a ray of hope to all low-income countries that can organize themselves to seize the unprecedented economic opportunities created by a multi-polar world.

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1 The concept of “economic structure” refers to “the composition of production activities, the associated patterns of specialization in international trade, the technological capabilities of the economy, including the educational level of the labor force, the structure of ownership of factors of production, the nature and development of basic state institutions, and the degree of development and constraints under which certain markets operate (the absence of certain segments of the financial market or the presence of a large underemployed labor force, for example).” (Ocampo et al., 2009: 7).

2 The long list of these early development economists includes Rosenstein-Rodan (1943); Singer (1950); Lewis (1954); Nurkse (1956); Myrdal (1957); and Prebisch (1959); Chenery and Bruno (1962); and Furtado (1964).
3 Dutt and Ros (2003) provide a comprehensive review of the main and often overlapping currents of early economic structuralism. They suggest that the first phase, which occurred from 1945 to the mid-1950s, was launched by Rosenstein-Rodan, Lewis, and Nurkse. A second sub-group extended from roughly the mid-1950s to the late 1960s and was dominated by contributions from Myrdal, Hirschman, Chenery and Bruno, and Furtado. A third sub-group, called “neo-structuralism” or “late structuralism,” emerged in the early 1980s to respond to criticism from neoclassical economists and to modify and enrich development economics with lessons drawn from economic analysis and the actual experience of poor countries. It is represented by contributions from Taylor (1983, 1991), Ocampo and Taylor (1998), and Ocampo et al. (2009).

4 Game theory has shown, for instance, that individuals tend to value fairness and are very often more generous than the rational agent model would predict. See Henrich et al. (2001). With such developments in neoclassical economics, Taylor (1992) suggested that modern neoclassicism is little more than an effort to co-opt and integrate in their knowledge corpus the accurate observations initially made by structuralists.

5 Taylor objects to Krugman’s assertion that early economic structuralism disappeared from the mainstream’s view because it was insufficiently formalized. He argues that the old development literature lost impact because it had two ideological drawbacks: first, while it was rich with diagnoses of development problems, it offered little policy advice. Balanced and unbalanced growth, relative backwardness, circular flows, cumulative processes, and so on were “intriguing metaphors but didn’t help much with practical decisions. Planning models and cost-benefit analysis proved to be more of academic interest than managerial worth.” (Taylor 2004: 362). Second, the early development economists placed limitless faith in the capacity of the state to intervene in the economic system.

6 Even future Nobel Prize winner Gunnar Myrdal suggested in his book *Asian Drama* (1968) that the region’s economic future was bleak. He believed that traditional power structures were likely to persist and that unless there was change, the chances of economic take-off were slim. He found the governments in the region too “soft” (he used the term the “soft state”) and unable to enforce the discipline that was needed to implement their development plans. He even concluded that authoritarian regimes, rather than democracy, might be the best system for achieving structural transformation.

7 For a quick intellectual history of the importance of increasing returns in economics and a review of progress on theoretical analysis, see Krugman (2008).
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