

# Introduction

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It is widely recognized that the process of economic expansion, which has taken off exponentially since the industrial revolution, is a non-homogeneous and multifaceted phenomenon which has deeply affected human welfare and cultural, social and political change. Nevertheless, many contributions to the study of economic growth, focusing on some basic features of growth and development, underplay this complexity. The tendency to oversimplification in the economic literature carries with it the risk of overlooking aspects required for a full understanding of why some countries flourish while others lag behind.

In the post-war period (during the years of the ‘high development theory’), a group of theorists (including Rosenstein-Rodan, 1943; Lewis, 1954; Myrdal, 1957; and Hirschmann, 1958) put forward several analyses which had regional inequalities, structural change and dualism at the core of their inquiry. These authors stressed the existence of endogenously produced imbalances and were well aware that crucial factors that could favour or hinder economic take-off are aspects related to geographical features (these can be grouped into first nature or non-human-determined geographical features which may have an impact on the economic performance of a region, for example rivers, lakes, natural harbours, mineral deposits and, on the other hand, second nature or human-determined geographical features, for example those features that are dependent on the spatial interaction among economic agents); to the quality of institutions; to market imperfections due, for example, to the existence of externalities, scale economies, and so on; to excess labour supply; and, more generally, to the structure of economic systems. These theorists were able to identify many typical features of development and underdevelopment, such as cumulative causation, increasing returns, externalities and dualism. However, they avoided the extensive use of mathematical tools and preferred to use narrative argumentation as a major heuristic device, preventing the complete comprehension of all possible implications of their analyses.

The modern literature has taken on board many elements of previous elaborations. Some of the ideas stemming from authors from the past have been incorporated in more formal analyses. These analyses emphasize the existence of multiple equilibria, bifurcations and various types of dynamic complexity and clarify the conditions for the emergence of phenomena such as cumulative causation, path dependence and hysteresis (poverty traps and geographical agglomerations representing the major manifestations), that are the typical ingredients of structural change, economic development or underdevelopment.

### **Structural Change**

Matsuyama (2008), while concentrating his analysis on sector composition of output, recognizes that structural change is a ‘complex, intertwined phenomenon’ constituted by ‘sector composition ... organization of the industry, financial system, income and wealth distribution, demography, political institutions, and even the society’s value system’. If defined in such a broad manner, structural change cannot be simply considered a consequence of economic growth. Instead, economic growth and structural change are the simultaneous manifestation of what the Nobel laureate Simon Kuznets defined as ‘modern economic growth’ (see his Nobel Lecture, delivered in Stockholm in 1971 and published in *AER* in 1973; see also his contributions on development economics from the early 1960s to the late 1970s).

‘Modern economic growth’ is based, as largely recognized, on technological progress. In the production process, technological advances translate into the introduction of cost-reducing innovations and new goods for production or consumption. As a consequence, the output level and the sectoral composition of the economy are both affected. The impact differs among industries depending on the specificities of the production process or of the innovation itself or on the ability of each sector (measured by the demand elasticity) to capture the resources that are released following economic change. The introduction of innovations requires several other changes, like size and location of firms, legal and societal innovations (so the state also plays a major role) and so on. Changes of this kind are also linked to shifts in labour force status (for example, from employers to employee, from unskilled to skilled), mass migration into cities (and, generally, geographical agglomeration of economic activities), the way the labour force is recruited (on the basis of formal rather than informal channels), the need for skills upgrading (and scholarization), and the creation of new needs and goods linked to the new way of living (for example markets for entertainment and sports linked to urbanization). All these kinds of changes

are not a consequence, but an intrinsic component of economic growth, and ultimately define the notion of structural change.

It should be stressed that this kind of dynamic process occurs at a scale that is not only local (regional or national), but involves a ‘globalized’ world; this international dimension together with the already recalled agglomeration of economic activities makes ‘geography’, in an economic sense, a non-accidental aspect of economic growth, at very different scales. Two aspects emerge from the previous discussion: first, structural change is a fundamental aspect of the process of development, and not a product of exogenous shocks; besides, there are many feedbacks linking structural change and economic growth (and this circular causality can produce both virtuous and vicious circles).

We now explore some recent theoretical approaches which share common elements with traditional development analyses on structural change and economic development. This is not the place to provide a comprehensive survey, but it may be useful to consider briefly a few lines of research relevant to the contributions to this book. The first subject to be investigated is the role of sectoral change. We can recall at least two different lines of research: the post-Keynesian approach and endogenous growth theory.

Post-Keynesians stress the role of demand as a determinant of economic growth. Their analysis, however, often represents highly aggregated economies. As is well known, Kaldor (1966) proposed a mechanism, derived from Smith, and known since then as the Verdoorn–Kaldor law: the productivity growth rate depends on production growth (market enlargement). In this approach exports play a fundamental role in demand expansion, and, as a consequence, can determine the rate of growth of productivity. Moreover, as shown in other contributions in the same tradition, the strength through which external demand affects economic growth depends on the sector composition of exports (and of imports): since different goods have different income elasticities, gains and losses from trade are unevenly distributed among countries.

Belonging to the same Keynesian tradition, but enjoying a much higher level of disaggregation, Pasinetti’s theory (1981) pursues the same objective of identifying the determinants of development. Pasinetti’s approach maintains that the expansion of modern multi-sectoral economic systems is not uniform. Although productivity growth drives a country’s economic growth, the rate of productivity change differs among sectors. Moreover, as the economic system develops, there could be discrepancies between supply and demand due to the effect of Engel’s law on consumer preferences.

Moving on to look at endogenous growth theory, at least two kinds of models deal with structural change. First, there are models where the change in the nature of goods is the fundamental cause of economic growth. This

concerns, first and foremost, models that incorporate an increasing variety of goods: in such models new intermediate goods are continuously invented and introduced into the market. These goods enter additively in the production function of final goods and their marginal productivities are independent of the quantity of other kinds of intermediate goods. As a consequence, old varieties are not displaced by new ones. Since the presence of monopoly rents provides the incentive for firms to produce new goods and on the basis of several hypotheses (in particular, constant returns to scale in production), in the market there is an ever growing number of intermediate goods. This is the fundamental mechanism behind the growth of final production (see Romer, 1990; Grossman and Helpman, 1991; Barro and Sala-i-Martin, 1995).

Another way to look at the linkage between growth and the nature of goods is represented by the so-called models of 'quality ladders'. Also in these models, intermediate goods enter explicitly in the production of final goods. Here, it is not the number but the quality of intermediate goods that is relevant. Within each sector intermediate goods with different quality degrees are perfect substitutes in production: as a consequence, new goods replace old ones. Again, the incentive to innovate derives from the presence of (temporary) monopoly rents and quality is continuously improved, new (and better) intermediate goods drive out old ones and production of final goods grows. There is a process of 'creative destruction' (as described by Aghion and Howitt, 1992; Grossman and Helpman, 1991; Barro and Sala-i-Martin, 1995). If we further consider relations among different economies, similar models may also be employed in theoretical frameworks with leader and follower countries.

Nevertheless, in this perspective, it would appear more appropriate to start from the seminal paper by Lucas (1988). In his model, Lucas introduces human capital growth as the basic determinant of income growth. Human capital plays a major role in modern growth theory: it can take the form of externalities, or various types of learning. Generally speaking, human capital grows because of non-decreasing returns to scale in its production; in the Lucas model, it takes the form of schooling or, alternatively, the form of learning-by-doing. Endorsing the latter interpretation and assuming that different countries specialize in different goods, since learning processes have different intensities in different sectors, if a country specializes in a sector with an intense (low) learning-by-doing process, it will have a higher (lower) rate of growth of income. 'Who specializes in what' depends on initial conditions. In such a model (constant) rates of growth are endogenously determined and they (endogenously) differ among countries. The rate of growth of leaders may well be higher than that of followers. Grossman and Helpman (1991) have also discussed in length the effects of

global spillovers (contrasted to those of local spillovers) in an economy which comprises different countries.

Interestingly, even if different in their ‘spirit’, both Keynesian and endogenous growth models evidence the existence of self-sustained economic growth and the possibility of different growth rates among countries, especially when leader and follower are compared: ‘convergence’ is not a necessary outcome of the process of economic development. It is particularly evident that works on ‘dualism’ share elements from both the theoretical traditions outlined above; micro-founded models explicitly introduce the presence of two or more sectors with different production technologies and depict mechanisms of interconnection among them; both demand-oriented and supply-oriented models can be found.

### **Economic Geography**

As stressed above, geographical aspects are another feature that is relevant to the development process: the presence of frictions of various kinds has prevented, *de facto*, the international diffusion of growth and, as a result, international income inequalities continuously increased after the industrial revolution. Only very recently, say during the last 20 or 30 years, has this trend stopped and (perhaps) reversed. In practice, centripetal forces overcome centrifugal forces, favouring the emergence of agglomeration effects. In this regard, ‘New Economic Geography’ (NEG) draws on some central aspects of the interpretations proposed by Rosenstein-Rodan, Myrdal and Hirschman (see Krugman, 1995; Brakman et al. 2001), embedding them in formal analyses. At the core of new economic geography is the core–periphery paradigm, inspired by Krugman (1991a, 1991b). Fujita et al. (1999) portray the new paradigm – the basis of the NEG – as one that integrates urban, regional and international economics in a single theoretical framework and, more generally, remedies the omission of space from mainstream economics.

The standard core–periphery (CP) model assumes two symmetric regions or countries, each with a competitive agricultural sector and a manufacturing sector, where manufacturers produce differentiated goods under monopolistic competition. The agricultural commodity is produced by regionally immobile farmers and can be transported costlessly between regions. The production of manufactures involves increasing returns and uses solely the labour of workers. Workers migrate between the manufacturing sectors in response to differences in real wages. The primary focus is on the impact of the costs of transporting manufactures between regions on the geographical location of manufacturing industry. Depending on the parameters, the only sustainable long-run behaviour is a stationary

symmetric equilibrium, with manufacturing equally distributed between the regions, and/or core–periphery equilibria, where all manufacturing is concentrated in one region (the core), with only agricultural production in the other region (the periphery). The structure of the model allows for the possibility of catastrophic agglomeration, that is, a small fall in transport cost can result in an abrupt shift from a symmetric equilibrium to agglomeration of all manufacturing in one region, and locational hysteresis, that is, the economy could shift from a symmetric equilibrium to a core–periphery equilibrium as a result of a location shock, and not move back again when the cause of the shock is removed.

Such phenomena are a consequence of various circular and cumulative processes: in particular, labour migration decisions not only depend on regional costs-of-living but also impact on these costs-of-living, resulting in ‘cost-linked circular causality’. Moreover, the expenditure switching that results from worker migration provides incentives for further shifts of manufacturing, resulting in ‘demand-linked circular causality’. Despite its many simplifying assumptions, the standard model is extremely complex. Since the complexity is such that closed-form solutions are not possible, analysis of the standard model has relied heavily on numerical simulations. Nevertheless, despite its analytical intractability, the model has provided invaluable insights into understanding how the interplay of opposing centripetal and centrifugal forces – analogous to Myrdal’s (1957) ‘backwash’ and ‘spread effects’ – governs the location of manufacturing industry.

In a recent contribution, Baldwin et al. (2003) provide comprehensive treatments not only of the seminal CP model but also of a number of more tractable variants. NEG models, in all their variants, are quite suitable to study the effectiveness of policies designed to aid laggard regions (for example, the EU’s development and cohesion regional policies). An interesting line of research explores the effect on industrial location and on regional inequalities of different types of government intervention: subsidies; public expenditure in infrastructure and productive services; public spending in consumption goods; taxation regimes (Martin and Rogers, 1995; Martin, 1999; Brulhart and Trionfetti, 2004; Dupont and Martin, 2006; Commendatore et al., 2008; Ihara, 2008). However, further analyses are required which should take explicitly into account that differences in the quality of local institutions may negatively affect the attractiveness of less developed regions.

### **This Volume**

The contributors to this volume share the belief that only sufficiently rich models are suitable to study evolving real economies. The volume presents

several perspectives on the ‘mechanics of economic development’, according to which geographical and structural aspects play a crucial role in shaping the economic development path.

The book is organized as follows. Part I collects contributions concerned with the impact of geographical factors on growth and development. Part II comprises contributions dealing with structural change and dualism.

## **PART I: THE IMPACT OF GEOGRAPHICAL FACTORS: ASPECTS OF LOCATION AND SPECIALIZATION**

In Chapter 1, Commendatore, Kubin and Petraglia investigate the effect of public expenditure on the regional distribution of economic activity (firm location). They adopt a modified core–periphery framework, with capital being inter-regionally mobile, but earnings from capital accruing to immobile capital owners. Government provides public services and this has consequences on demand and supply: public services are financed through taxation (which impacts negatively on the consumption of manufactured goods), but they increase manufacturing firms’ productivity. Given the model’s assumptions, the overall effect of government activity depends on the regional distribution of the tax burden and several scenarios could emerge; an interesting insight is that the benefits that laggard regions could receive from the provision of public services substantially increase if these are partially financed by the more prosperous economies.

In Chapter 2, Talamo develops a gravity equation framework in order to assess the weight of various determinants of foreign direct investment (FDI). In the first sections the author stresses that FDI is an instrument through which firms try to increase their ‘control’ over markets. Following this view, the chapter focuses on institutional variables, since they influence the effectiveness of ‘control’. The results show that many institutional variables, like shareholder protection rules and taxes, play a major role in directing FDI flows. We may infer that economic policy could have a concrete impact in influencing FDI size and direction.

In Chapter 3, Fiaschi deals with the problem of absent or slow growth of sub-Saharan countries, even in the presence of abundant natural resources (a first nature geographical feature). This is a contribution to the well-established literature on the ‘natural resources curse’, according to which natural resources abundance could hinder rather than foster economic growth. Fiaschi develops a model with revenues deriving from two sources: production activity and natural resources. If the stock of capital is too small, the productive sector cannot guarantee sufficient income to the population, then a social conflict arises in order to appropriate natural resource rents

(independent of the level of social conflict itself) and a poverty trap is the economic result. This trap can be avoided only in the presence of a (relatively) high initial level of capital, inducing all individuals to engage in production. Another conclusion of the paper is that institutions matter: less appropriable rents discourage social conflicts and make manufacturing more attractive.

In Chapter 4, Cutrini provides a general and unified picture to describe specialization and concentration tendencies inside Europe. The theoretical background refers to ‘classical’ Myrdal contributions, as well as to Krugman and more recent NEG works. Cutrini applies statistical decomposable (entropic) indices to regional and sectoral European data, testing for results significance. Her main findings can be summarized as follows: there is a general dispersion of manufacturing activity in all sectors with the major exceptions of Textiles and Transport Equipment. The explanation put forward by the author is that the spread of economic activities is due to forces operating ‘within’ countries, while mixed evidence arises concerning agglomerative tendencies occurring ‘between’ countries. The author concludes that further work is required in order to distinguish whether such effects derive from the single market creation in itself or from the economic policies pursued by the European institutions.

In Chapter 5, Lo Turco and Tambari deal with a problem often tackled by economic scholars belonging to different theoretical traditions, namely, the possibility that the sectoral structure of an economy affects the rate of growth of the economy itself. They consider a standard empirical framework for the estimation of economic growth determinants, including the qualitative aspects of the sectoral composition of exports. They develop several indices of specialization, reflecting different approaches to the question, and show that the average human capital content of a country’s exports seems to be a robust determinant of economic growth: countries specializing in goods with a high human capital content will probably grow faster than others. This also raises the question of the role of economic policy.

In Chapter 6, Lo Turco focuses on institutional aspects. In particular, she verifies whether South–South regional agreements can affect economic growth. This is tested in the context of Latin American countries. The econometric analysis is carried out through cointegration estimates, and takes specific sectoral effects into account. The author concludes that although such agreements have overall positive effects on economic growth, most of the benefits accrue to the larger economies and to sectors where countries already had a comparative advantage before entering into a trade agreement.

## PART II: THE PROCESS OF STRUCTURAL CHANGE AND THE ROLE OF DUALISM

In Chapter 7, Panico and Rizza reassess the main contributions of Myrdal to Political Economy and to the problem of economic development in particular. They focus on the contraposition between the 'stable equilibrium' neoclassical tradition and Myrdal's approach of 'cumulative causation'. Endorsing either one of these two different approaches gives a different interpretation of what economic mechanisms are at work and in what direction they are leading the real world economies. Myrdal's approach also broaches the question of the role of economic policy and state intervention in economic processes since, in the presence of cumulative effects, perpetual disequilibrium is a possible outcome which can only be corrected by economic policy. Considerations are also made concerning the problem of 'objectivity' of research in the field of social sciences.

In Chapter 8, Capasso and Carillo survey the most recent literature on dualism. A dual economy is characterized by the presence of sectors at different levels of technological advancement and, necessarily, by some linkages between them. Several mechanisms that could explain the rise of a dual economy are identified, ranging from the presence of Engel's law acting at different stages of economic development to the evolution of sectoral technologies and the induced effects on unemployment, migration and so on. A novel two-sector model where production depends on human capital in both sectors and agents are mobile across sectors is also provided. The model produces a positive feedback between labour employment and sectoral wages.

In Chapter 9, Bilancini and D'Alessandro elaborate an analysis in which industrial take-off is possible depending on income distribution in the agricultural sector. In the model they put forward, there are two sectors (agriculture, characterized by constant returns, and industry, with increasing returns) and four income recipients (peasants, industrial workers, landowners and entrepreneurs). An interesting result is that income distribution among peasants and landowners can be a deterrence or, alternatively, an incentive to economic growth: if the share of agricultural product received by peasants is sufficiently high, the demand of industrial goods becomes large, and this provides a stimulus to economic take-off and to subsequent growth (given increasing returns in the industrial sector). In summary, the authors envisage the possibility that an unequal income distribution may induce a poverty trap, that is, high inequality is detrimental to economic growth for poor countries.

In Chapter 10, Valensisi develops a two-sector model *à la* Lewis (1954): production in agriculture is characterized by decreasing returns, whereas in manufacturing increasing returns prevail. Moreover, labour market

institutions differ in the two sectors, since there is perfect competition in the agricultural labour market, contrasting with efficiency–wages rules in manufacturing. The model outcome is characterized by multiple equilibria (with poverty traps) and by structural change dynamics (involving, for example, an agriculture–industry shift). Particular attention is devoted to the effects of technical progress, both in agriculture and in manufacturing. It is worth noting that a rise both in agriculture and manufacturing total factor productivity (TFP) reduces the probability of a poverty trap.

In Chapter 11, Guarini estimates a modified Sylos Labini productivity function using disaggregated data at the level of the Italian regional rates of growth. After a discussion of the characteristics of ‘technological capability’, in which several aspects of learning are sketched, the author provides econometric estimations of the rate of growth of Italian regions. The productivity rate of growth is explained by a Smith effect (market enlargement) and a Ricardo effect (investment in new machinery induced by increasing labour cost), as well as by changes in technological capability. The author interprets the first two effects as a measure of tacit knowledge, due to learning by doing (Smith) and embodied in machinery (Ricardo), while explicit technological variables in the estimates should provide a measure of codified knowledge. Several econometric estimators are utilized and they generally confirm that codified knowledge explains only part of the differences in performance among Italian regions; indeed, both the Smith and Ricardo effects prove to be significant.

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