

2016 Doctor's Thesis

**Structural Change and Economic Growth in
Transition Economy:
The Empirical Case of the Kyrgyz Republic**

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Chapter 1 Introduction

1.1 Motivation for Research

The transition from a centrally planned economy to a market economy that has taken place over the last 25 years has been a painful process and has had profound economic and social effects on the countries of Central and Eastern Europe, and the former Soviet Union. This long period featured a transitional recession in the early 1990s, when the transition began, the subsequent recovery from which lasted until the 2008-2009 global financial crisis. The present climate is characterized by economic stagnation, which was caused by the 2008-2009 crisis. The poor recent economic performance which has followed this crisis across many transition economies has exposed weaknesses in growth strategies even in the most successful transition countries. Twenty-five years is a long period, and yet transition still continues as transition countries have not been able to achieve their goal – to achieve standards of living comparable with those of developed market economies.

A substantial amount of research on economic transition has been accumulated during this period, mostly focusing on effects of market reforms on different aspects of economic performance. This research addresses economic growth in transition economies. The straightforward intuition would be to study how the implementation of transition policies affected growth performance across transition countries. However, this would contribute little to what we know about economic growth and transition. The motivation behind research on growth in transition is to address the problem of sustainability of economic growth in transition economies as these countries face challenges similar to former centrally planned economies.

Socialist countries were challenged with decreasing growth rates and greater economic stagnation and dissatisfaction with standards of living compared with developed economies. They have chosen the most radical path to reforming their economies by completely abandoning central planning and adopting market economy models. However, economic theory provides no explanation of how the market economy and sustainability of economic growth are linked. Transitional policies of privatization, liberalization and macroeconomic stabilization have become an end in themselves. They were necessary, but not sufficient for achieving sustained economic growth.

My primary motivation is to address the problem of sustainability of economic growth in transition economies. This task may be ambitious, because it requires revisiting what we know about economic growth. However, the transition experience provides a unique opportunity to enrich our knowledge about economic growth, development and workings of the market economy. The transition experience can tell us more about the role of competition and entrepreneurship in innovation. This research uses this unique opportunity.

Our understanding of sources and mechanisms of growth should include factors other than capital accumulation and technological progress. It should be recognized that the structural change is not only a historical fact of development, but important source of growth. However, recognition of structural change as the source of growth requires a reconsideration of the conceptual frameworks and empirical approaches that are used to understand economic growth.

The economic transformation of the former centrally planned economies involves a process of structural change and fundamental reallocation of

resources driven by market incentives. The Kyrgyz Republic is just one of the countries that is transitioning from a centrally planned system to a market system. This dissertation empirically studies how structural change in the form of labor reallocation across sectors has contributed to productivity growth in the Kyrgyz Republic. Empirical analysis provided motivation to better understand the mechanisms of structural change and economic growth. Focusing on structural change as the mechanism of growth makes unconventional policy implications for transition economies possible.

1.2 Structure of the Dissertation

This dissertation is structured to bring together theoretical, empirical, conceptual and policy frameworks to examine the role of structural change in economic growth.

Chapter 2 provides the theoretical framework with which the relation between structural change and economic growth is empirically examined, particularly focusing on the role of labor reallocation and its contribution to productivity growth. *Chapter 3* presents an empirical study of the impact of structural change and labor reallocation on economic growth observed in the Kyrgyz Republic during the transition period. In *Chapter 4*, a conceptual framework of sustained economic growth is presented where continuous structural change plays a central role. The role of qualitative material change in analysis is discussed. *Chapter 5* addresses policy implications, which are aimed at initiating and fostering structural transformation in transition economies. *Chapter 6* concludes and suggests topics for further research.

Chapter 2 Economic Growth and Structural Change: Review of the Literature

The collapse of centrally planned systems has brought new challenges to the conventional understanding of the sources of economic growth and productivity. One such challenge, which is important not only for transition, but for development in general, is efficient allocation of resources across sectors and separation other sources of growth from traditional capital accumulation and technological progress (Campos and Coricelli, 2002).

Traditionally, economic growth models focus on aggregate measure of growth, such as GDP. They largely ignore the structure of the economy and changes in economic structure that occur during economic development. However, such focus overlooks many underlying factors, which would allow us to better understand mechanisms of growth and recognize the role of structural change in promoting sustained growth.

The objective of this chapter is to provide reasons for thinking that structural change and labor reallocation function as the sources of growth, not providing a comprehensive survey of the literature on every aspect of structural change. In this chapter, we review theoretical and empirical approaches to the contribution of structural change to economic growth and focus on the impact of reallocation of labor across sectors on productivity growth.

2.1 Structural Change as Stylized Fact of Development

2.1.1. Structural Change and Growth Theory

Conventional growth theory¹ tells us that economic growth is a result of capital accumulation and technological progress. Of course, both are important sources of growth; however, differences in growth rates and income levels across countries suggest that there is another mechanism of growth that plays a prominent role in explaining differences in economic performance.

The processes of modern economic growth and development do not merely involve an increase in aggregate output or productivity levels, but also entail changes in the allocation of outputs and factors of production across economic activities. Therefore, economic growth and development are not only dependent on capital accumulation and technological progress. They are also dependent on changing the structure of production, in which productive resources are directed towards activities with higher levels of productivity. This process generates changes in the relative significance of sectors in the economy, and is generally referred to as structural change or structural transformation.

Therefore, there is a need to investigate the mechanisms of structural change and the contribution of structural change to growth and development. However, as Krüger admits “the topic of structural change is frequently neglected in economic research, despite its high relevance for growth theory” (Krüger, 2008, p. 331). In conventional growth theory, an economy is represented by one sector model, in which growth is described as the uniform expansion of that single sector. Structural change does not fit within such a

¹ I refer to the strand of theories originally developed by Solow (1956).

framework². Aghion and Howitt recognize that conventional growth models “miss the stages of development in which resources are gradually reallocated from agriculture to manufacturing and then to services, all with different factor requirements and different technological dynamics. The economy is always a scaled up version of what it was years ago, and no matter how far it has developed already prospects for future development are always a scaled up version of what they were years ago” (Aghion and Howitt, 1998, p. 65).

The core insight of structuralism is that developed and developing countries are structurally different and are therefore qualitatively different. Developing countries are not just smaller versions of developed countries. At the same time, developed countries are not simply larger versions of developing countries.

2.1.2. What is Structure and Structural Change?

In order to explain stylized facts of economic development and understand the processes that govern allocation of output and factors of production, it is necessary to disaggregate economic activity. Such disaggregation requires introduction of the term “structure.” Structure of an economy is important because it tells us what goods are produced in the economy. Since aggregate output is distributed between economic activities producing different amounts of added value, an economy as a whole can be analyzed not in aggregate terms but in structural terms. Syrquin defines the term “structure” as “the relative importance of sectors in the economy in terms of production and factor use” (Syrquin, 1988, p. 206).

² Multi-sector growth models developed within conventional growth theory still has difficulties in explaining major processes of structural changes, sector interdependence and allocation of resources across different sectors (Aghion and Howitt, 1998).

Fisher (1935), Clark (1940) and Fourastié (1949) proposed a three-sector hypothesis, according to which, in the course of economic progress, labor shifts from agriculture to manufacturing, and then to services. Fisher (1939) divides economic sectors according to a hierarchy of needs, starting with goods that satisfy basic needs in the *primary* (agriculture, fishing, forestry, mining), *secondary* (manufacturing and construction), and *tertiary* (services) sectors. He first highlighted that the dominant sector varied through different stages of economic development. He postulates that economic growth is initially led by the primary sector, and then, with advent of industrialization, shifts to the secondary sector. Finally, the tertiary sector occupies the major share of employment and output.

In explaining changes in the structure of employment, Clark (1940) emphasized the importance of demand shifts and recognized differences in productivity growth. He argued that labor will be reallocated from manufacturing to services. This will occur because, on the one side, manufacturing has high rates of productivity growth but stagnating demand. On the other side, labor shifts to services, because services tend to have lower rates of productivity growth but increasing demand.

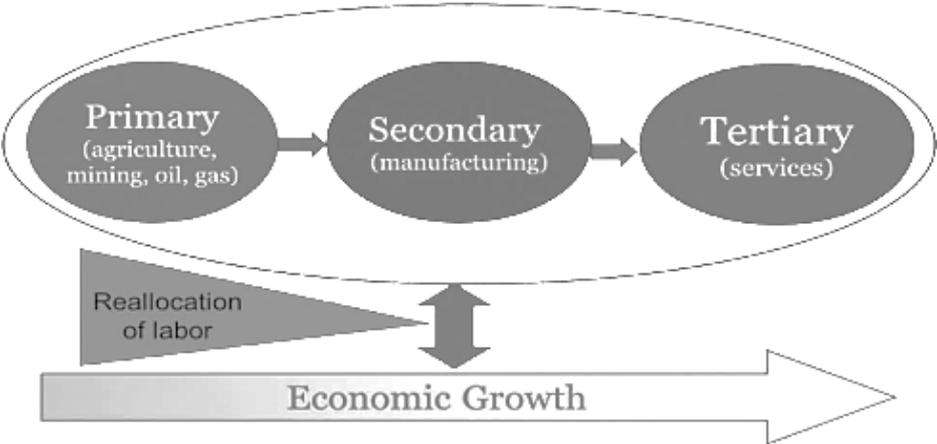
2.2 Theoretical Research on Structural Change and Economic Growth

2.2.1 Structural Change as Pattern of Development

From a historical experience of development, during the process of structural change the productive resources are reallocated from the primary sectors (agriculture, or natural resource extraction) to the secondary sector (manufacturing) and when countries achieve higher level of development structural change proceeds in form of reallocation of productive resources from

manufacturing to the tertiary sector (services) (Nassif et al., 2013). (Table 2-1, Figure 2-1).

Figure 2-1 Structural Change as a Pattern of Development



Although structural change is a well-documented phenomenon, so far there exists no general theory of structural change, and no universal explanation of the mechanisms of structural change. Krüger admits that “The topic of structural change is frequently neglected in economic research, despite its high relevance for growth theory, business cycle theory and labor market theory as well as for economic policy. Admittedly, to date there exists no general theory of structural change, but there exist a variety of theoretical approaches that are concerned with the explanation of structural shifts between the three broad sectors of the private economy and among the industries within these sectors” (Krüger, 2008, p. 331). The emergence of each approach was stimulated by historical changes in structure that took place at the time of the approach’s emergence. The role of each sector is different at each stage of development. Therefore, theories that can successfully explain the shift from agriculture to manufacturing can hardly explain the shift from manufacturing to services.

Table 2-1. Changes in the Structure of Employment in Selected Developed Economies

	1900			1950			1971			2010		
	Agriculture	Industry	Services									
USA	37.6	30.1	32.3	11.9	34.5	53.6	4.4	32.9	62.7	1.6	17.2	81.2
Japan	70.0	13.8	16.2	48.6	21.7	29.7	15.9	36.0	48.1	4.0	25.1	70.8
France	43.1	30.7	26.2	27.2	35.7	37.1	12.8	39.3	47.9	2.9	22.1	75.0
Germany	38.0	40.4	21.6	22.2	42.9	34.8	8.1	48.4	43.5	1.6	28.4	70.0
Italy	58.7	24.3	17.0	42.2	32.1	25.7	20.2	39.7	40.1	3.8	28.6	67.6
Spain	68.1	13.6	18.3	48.8	25.1	26.1	26.1	35.6	38.3	4.2	23.0	72.8
United Kingdom	9.8	51.2	39.0	5.5	48.9	45.5	3.1	43.8	53.1	1.2	19.1	79.7

Source: Author's calculations based on data from Feinstein (1999) for 1900, 1950, 1971 and from OECD for 2010

Germany data for 1950 and 1971 are for West Germany

With the advent of industrialization and the shift from agriculture to industry, the classical model attempting to theoretically describe structural change in developing economies was Lewis model of dualistic development (Lewis, 1954). His dual-economy model emphasizes the role of sectoral differences in the overall development of the economy. The model explains how developing economy moves from a traditional agricultural base to a manufacturing-led economy. An assumption of that model is that underdeveloped economies have two sectors: a *traditional*, large agricultural sector where labor is employed inefficiently, low productivity, low income and low savings; and a *modern*, small industrial sector with high productivity, high income and high savings. In Lewis's view, structural change occurred by gradual replacement of traditional sectors by modern sectors and techniques, fueled by capital accumulation in the expanding modern sector. Later, some assumptions of this model were subject to criticism – namely, that the rate of labor transfer from traditional sector and employment creation in the modern sector is proportional to the rate of modern-sector capital accumulation; that there is full employment in the modern sector; and that wages in the modern sector will grow to the point to which surplus labor in the traditional sector is exhausted.

Kaldor (1966, 1967) and Kuznets (1971, 1979) established relations between structural change and economic growth. Kaldor studied the relationship between industrial growth and the performance of the economy as a whole, and focused on the role of the manufacturing sector in economic growth. According to Kaldor, manufacturing is the engine of growth. The faster the rate of growth of industrial output, the faster the growth rate of a country's GDP. This link between the growth of manufacturing output and GDP growth is sometimes

referred to as Kaldor's first growth law. One reason for this relation is that expansion of industrial output leads to productivity gains.

This effect is linked to increasing returns in manufacturing. In contrast, agriculture and services have diminishing returns. This is Kaldor's second law. Another reason behind the link between the growth of manufacturing output and GDP growth is that expansion of manufacturing draws labor from the overemployed, stagnant and less-productive agriculture and other sectors, where the average product of labor is above the marginal product. This raises productivity in non-manufacturing sectors and, as a result, increases overall productivity in the economy. This is Kaldor's third law. Thus, Kaldor's three laws explain how growth in manufacturing positively affects the overall growth of the economy.

Kuznets (1979) argues that the early stage of economic development is associated with a decrease in the share of agriculture and an increase in the share of manufacturing. At this stage, the economy shifts from the low-income to the middle-income group. As a country becomes a developed economy, a sustained increase in the share of the services sector is observed, at the expense of the decreasing share in manufacturing and decrease of share of agriculture continues. This is also well-known as the "Kuznets facts of development." Kuznets also states that "it is impossible to attain high rates of growth of per capita or per worker product without commensurate substantial shifts in the shares of various sectors" (Kuznets, 1979, p. 130).

Salter (1960) emphasized that productivity advances differ significantly across industries, which changes relative prices and leads to different rates of output growth. In his empirical analysis of UK productivity growth in the first

half of the 20th century, he showed that the ability to undertake structural change was of great empirical importance and that “structural changes play a role equally important as increases in productivity within individual industries” (Salter, 1960, p. 151). In Salter’s view “a flexible structure of production is an important element in the high rate of productivity increase, for it allows an economy to rapidly redistribute its resources so as to take maximum advantage of changing patterns of technological progress” (Salter, 1960, p. 9).

While structural change is not a main approach in neoclassical growth theory, some attempts to theoretically explain structural change in the general equilibrium framework have been made by developing three-sector models (Echevarria, 1997; Laitner, 2000; Kongsamut et al., 2001) or multisector models (Ngai and Pissarides, 2007). In post-Keynesian tradition, Pasinetti (1981) presents a model in which differential rates of productivity growth, non-linear income elasticity and the impact of innovations on the consumption structure are the causes of structural change. The role of innovation in structural change has also been analyzed in the evolutionary or neo-Schumpeterian framework (Verspagen, 1991).

2.2.2 Labor Reallocation and Productivity

Although the relation between economic growth and structural change is complex and not straightforward, the relation between structural change and productivity can be explained more clearly. The fundamental mechanism behind structural change is reallocation of labor. During structural change, labor resources are reallocated to their most productive use. Resources shift from activities experiencing slowdown of productivity toward activities with increasing productivity. Thus, structural change contributes to productivity

growth through resource reallocation, working as source of growth (United Nations Industrial Development Organization, 2009).

Changes in the sectoral distribution of employment reflect an important mechanism of structural change, i.e. the reallocation of labor from one sector to another, which accompanies development. However, the effect of structural change on productivity growth depends on the period of development and it is not necessarily positive. The period of industrialization involves the transfer of labor from low-productivity agriculture to high-productivity industry. This brings about an immediate increase in overall productivity. Industrialization and the accompanying transfer of labor is a major source of growth in developing countries. Such a shift is called “structural change bonus” by Timmer and Szirmai (2000). It was previously studied by other scholars, such as Lewis (1954), Fei and Ranis (1964), Chenery and Syrquin (1975), Chenery and Robinson (1986) and others³.

Different from industrialization, the shift to services remains unexplained and its effect on productivity growth is ambiguous. The transfer of resources from manufacturing to services causes a structural change burden. Baumol (1967) argues that with an increase in the share of services, aggregate per capita growth will tend to slow down. He constructs a two-sector model, where one sector is technologically progressive and the other is technologically stagnant. According to Baumol’s model of the unbalanced growth, shift of employment share towards services decreases the rate of economic growth because productivity in some services (for example the personal services, restaurants and hotels, health care and medical services, and government) is

³ See Szirmai (2011).

stagnant. This is referred to Baumol's "cost disease".

2.2.3 Sources of Structural Change

Economic growth theory views accumulation of capital and technological progress as the main sources of economic growth. Therefore, it is interesting to view which factors cause structural change.

The causal relationship between growth and structural change is not straightforward and one-way. Economic growth brings about changes in the structure of output and employment, and at the same time these changes affect growth. Kuznets (1966) sought structural change as the outcome of economic growth. He proposed that structural change is inevitable because of three factors: 1) differential impact of technological innovations on the several production sectors, which grow more rapidly than the rest of the economy and induce changes in the structure of production; 2) differing income elasticity of domestic demand for various consumer goods, and 3) changing comparative advantage in foreign trade.

Theories of structural change can be largely divided into two major complementary approach modes: supply-side and demand-side approaches.

As European Commission (2013a) pointed out, from the supply-side approach, structural change can be viewed as a result of differences in productivity growth rates among three broad sectors of economy – agriculture, industry and services. In such an approach, technological progress is the main driving force behind productivity growth. Due to the differences in productivity growth rates, sectors with high rates of technological progress increase their share of aggregate employment and value added, while sectors with a lower rate of technological progress shrink in terms of employment and value added

(Krüger, 2008).

The main idea behind demand-side analysis of the sources of structural change is that households expand their consumption along a hierarchy of needs. When the basic needs, such as food, are satisfied, consumers move on to more advanced needs. Thus, demand-side theory relates structural change to different income elasticities of demand between products and services of different sectors. This approach is founded on Engel's Law, which states that as income rises, the proportion of income spent on food falls.

Leon (1967) and Pasinetti (1981) emphasized the importance of the interaction of the supply and demand sides in determining the outcome of the process of structural change. Pasinetti stresses the influence of income elasticity on the pattern of demand and technological progress as the main drivers of structural change and long-term economic growth. Pasinetti considered population growth, learning in the process of production and learning of new patterns of consumption as the "natural" forces of structural change. These driving forces of structural change lead to differential rates of change of productivity, new products and changing consumer behavior.

Saviotti and Pyka (2004) emphasize the role of new industries in structural change and economic development.

2.3 Empirical Studies on Structural Change

A distinctive feature of empirical studies on structural change is based on the vision of an economy as a structure consisting of different sectors. Therefore, the fundamental method of empirical research is disaggregation or decomposition of the economy into sectors and examination of interactions between sectors. Such decomposition allows researchers to interpret the

differences in long-term economic performance among countries.

2.3.1 Relation Between Labor Reallocation and Productivity

Empirical studies focus on estimating the effect of structural change on economic growth through the mechanism of reallocation of labor from less-productive activities to more-productive activities. In this way, empirical research allows researchers to decompose labor productivity growth and its changes (e.g., Pieper, 2000; Ocampo et al., 2009; Timmer and Vries, 2008; McMillan and Rodrik, 2011; Seguino and Braunstein, 2012).

Felipe et al. (2010) studied the relationship between economic growth and structure of production. They found that heterogeneous structure of the export space (product sophistication and connectivity to other products) has been linked to level of development and has important implications for structural change.

To analyze the effect of changes in distribution of labor across sectors and productivity growth, shift-share analysis is often used. This method was devised by Fabricant (1942) to examine changes in the labor requirements per unit of output. The recent applications of this method essentially concentrate on decomposing labor productivity (Fagerberg, 2000; Timmer and Szirmai, 2000; Timmer and Vries, 2008). Shift-share analysis allows productivity growth to be decomposed into intra-sectoral and inter-sectoral effects, as shown in Equation 2.1:

$$P^T - P^0 = \sum_{i=1}^n (P_i^T - P_i^0) \bar{S}_i + \sum_{i=1}^n (S_i^T - S_i^0) \bar{P}_i \quad (2.1)$$

where P^T and P^0 are aggregate labor productivity in period T and 0,

respectively, S_i^T and S_i^0 are the shares of sector i in total employment labor of sector in period T and 0, respectively, \bar{S}_i is the average share of aggregate labor productivity of sector i , and \bar{P}_i is average labor productivity of sector i .

The first component on the right side is the intra-sectoral effect, which shows the growth of labor productivity within the sectors, and does not take into account labor shift during the analysis period. The second component is the sectoral effect, which captures the changes of labor share and multiplies and holds with the initial productivity levels. A positive sign for this effect means that there is a positive effect from reallocation, i.e. the labor is shifting from the less-productive sectors to more-productive sectors. A negative sign means that there is a negative effect from reallocation, i.e. the labor is shifting from sectors of higher productivity to less-productive sectors.

2.3.2 Role of Sectors and Patterns of Structural Change

Commonly, structural change was equated with the process of industrialization and the positive role of manufacturing in development. Manufacturing was traditionally a driver of growth in periods of industrialization, due to its ability to produce high levels of added value and generate jobs.

Empirical research is focused on the impact of industrialization on economic performance and the effect of reallocation of labor from traditional agriculture to modern manufacturing on productivity growth. Poirson (2001), in a panel of 65 developing and industrial countries from 1960 to 1990, found significant effects of labor reallocation, even after controlling for capital accumulation, initial conditions and country effects.

The last 30 years has witnessed shrinking employment in manufacturing

and the process of deindustrialization, accompanied by an increasing share of the service sector in terms of employment and output in developed economies. This challenged the traditional mechanism of labor reallocation. Empirical research has little to say about the impact of deindustrialization and the role of the service sector on productivity. The role of services increases as an economy becomes more complex; as manufacturing produces complex goods, it integrates other sectors. The services sector provides goods that are different in nature from those of other sectors, and is dependent on incomes earned in other sectors.

The last 30 years, characterized by the economic shift from manufacturing to services (deindustrialization and tertiarization), can be referred to as the post-industrial stage of development. The causes of deindustrialization and its consequences are different across countries. Rowthorn and Ramaswamy argue that deindustrialization is “primarily a feature of successful economic development” (Rowthorn and Ramaswamy, 1997, p. 62). The shift from manufacturing to services, which has been taking place in developed countries, indicates that the structure of manufacturing is becoming complex. A complex manufacturing sector requires an advanced service sector, therefore demand for services increases. Another reason for the steadily growing importance of services is increasing demand for health care and leisure services, caused by growth of income and changes in consumption patterns.

Structural change in advanced economies can be described as decreasing the share of labor employed in manufacturing – in other words, the process of deindustrialization. Because deindustrialization is a fact that accompanies a shift towards service-based economies, it is often viewed as a result of successful

economic development. However, deindustrialization may bring negative consequences, such as unemployment. Rowthorn and Wells (1987) distinguish between *positive deindustrialization* and *negative deindustrialization*. In their view, positive deindustrialization is a result of sustained economic growth in fully-employed and developed economies. Reduction in manufacturing employment, both in absolute terms and as share, does not create unemployment. This is because new jobs created in the service sector are sufficient to absorb workers displaced from manufacturing. From this point of view, positive deindustrialization is a result of successful economic development. In contrast, negative deindustrialization is a result of economic failure, because labor shedding in manufacturing is not absorbed in service sector. An economy can lose manufacturing jobs as a result of a shock, and the service sector may be unable absorb those newly unemployed.

2.4 Conclusions

By reviewing previous research, this chapter provided reasons for thinking about economic growth not as uniform and balanced process of expansion of one sector, but as a process of structural transformation. Understanding the relation between economic growth and structural change allows us to make many important conclusions. One is that structural change is not only a companion of economic growth, but its mechanism, which promotes aggregate productivity growth by reallocating resources from less-productive to more-productive sectors. Another is that structural change and economic growth are mutually interdependent. Structural change facilitates economic growth and growth depends on structural change. Sustained economic growth is not possible without continuous structural change.

A better understanding of the causes and mechanisms of structural change and its interaction with other aspects of development allows researchers to qualitatively improve explanations of economic growth and development.

Chapter 3 Inter-sectoral Labor Reallocation and Productivity Growth in the Kyrgyz Republic

Structural change has particular relevance to transition economies, where fundamental principles of allocation of resources change from those directed by the objectives of the central planning agencies to those guided by market forces.

This chapter examines the role of structural change in the economic development of the Kyrgyz Republic since its independence and transition to a market economy. The objective of this chapter is to investigate whether structural change observed in the Kyrgyz Republic contributes to economic growth. The first part of this dissertation provided information showing that the fundamental mechanism behind structural change is the reallocation of labor. During structural change, labor resources are reallocated to their most productive use. Resources shift from activities experiencing slowdown of productivity towards activities with increasing productivity. Thus, structural change contributes to productivity growth through resource reallocation, working as a source of growth. Whether we can observe the same mechanism in the Kyrgyz Republic is the objective of our study. During the period of transition from central planning to market economy, the contribution of reallocation of labor on sectoral productivity is expected to be larger.

3.1 Growth Experience and Structural Change during Transition

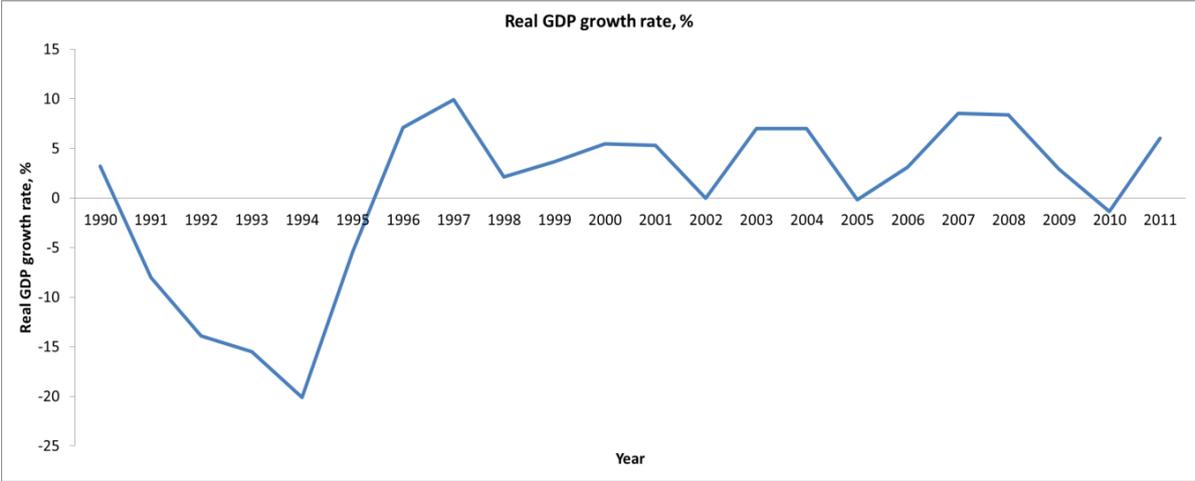
The process of transformation to market economy systems in each of the countries addressed in this study followed similar patterns and was based on the set of policies emphasizing virtually simultaneously (1) liberalization of prices, (2) liberalization of internal and external trade, (3) privatization of

state-owned enterprises, and (4) creation of a financial sector. Independent of the transition policies implemented, all transition countries that underwent rapid transformation (often referred to as the “big bang” or “shock therapy” approach) in terms of the liberalization of markets – triggering a massive reallocation of resources – suffered a severe recession at least in the first half of the 1990s, performing much worse than originally expected. However, the magnitude of output losses and the duration of GDP decline varied considerably; while some countries were able to resume growth after two to four years of recession, others experienced deep collapses of economic activity without much subsequent recovery.

For the countries of the former Soviet Union (FSU), being highly integrated in the production system of the Soviet Union before 1991, the breakup of the USSR contributed significantly to negative output shock. The Kyrgyz Republic was highly dependent on supply of inputs from and trade with FSU countries, and the collapse of these economic ties, combined with a steep drop in domestic demand, has resulted in enormous decline in output. The economy experienced economic growth afterwards, but this growth rate was volatile and by 2008 GDP had recovered only 97 percent of its 1990 level (Figure 3-1). Moderate and unstable economic growth rates and high unemployment rates have been the major economic problems of the Kyrgyz Republic since its independence and the beginning of its transition to a market economy.

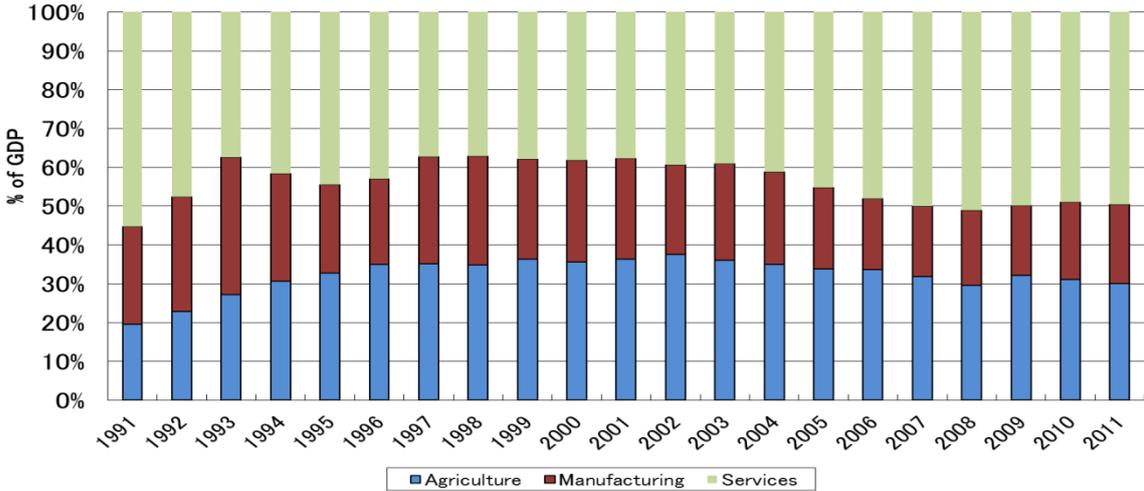
Accompanying the transition were substantial changes in the sectoral composition of value added, with a broad pattern of deindustrialization, declining agriculture, and expanding services, which had been repressed under central planning (Figure 3-2, 3-3).

Figure 3-1 Kyrgyz Republic: Real GDP Growth Rate



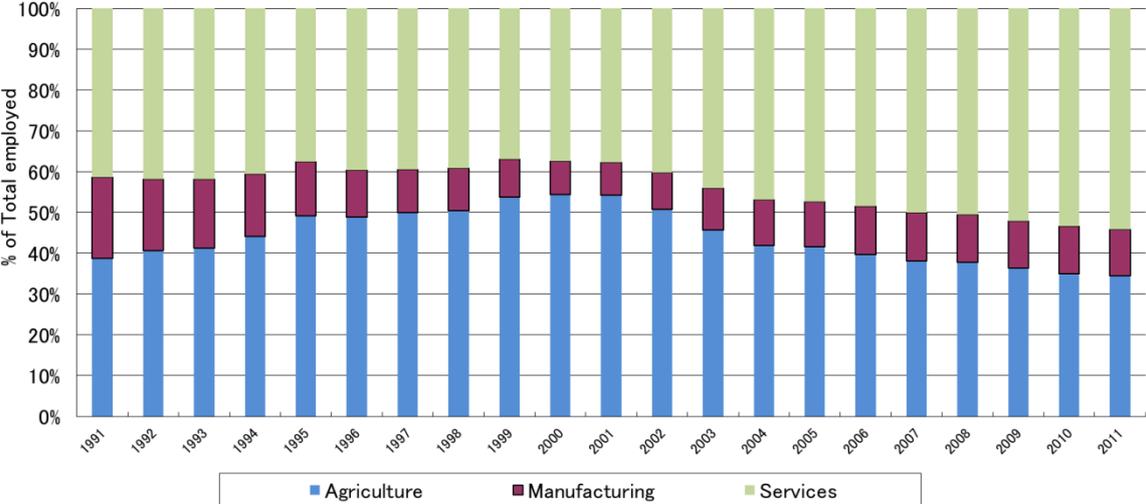
Source: National Statistic Committee of the Kyrgyz Republic

Figure 3-2 Kyrgyz Republic: Sectoral Distribution of GDP



Source: National Statistic Committee of the Kyrgyz Republic

Figure 3-3 Kyrgyz Republic: Sectoral Distribution of Employment



Source: National Statistic Committee of the Kyrgyz Republic

3.2 Previous Research on Structural Change in Transition Economies and the Kyrgyz Republic

One feature of the distribution of employment, which was a feature of the direction of structural change in most socialist countries, is a large industrial sector. Another feature is a small and underdeveloped services sector. Döhrn and Heilemann (1996) used the so called Chenery Hypothesis, which links the sectoral structure of an economy with its stage of development, size and the endowment with natural resources. Their model explains the sectoral composition of output in Eastern Europe during transition and refers to a comparative perspective of a normal market economy allocation.

Previous research on the structural transformation of the Kyrgyz Republic economy was conducted by Usui and Abdon (2010). They analyzed the degree of structural transformation in the economy of the Kyrgyz Republic focusing on the level of sophistication of the country’s exports by applying an approach developed by Hausmann and Klinger (2006). Usui and Abdon (2010) found that

while the Kyrgyz Republic is not well prepared for diversifying its export structure, it has a better opportunity for structural transformation than other countries in Central Asia.

3.3 Methodology

Structural change reflects changes in many aspects, not limited to economic aspects, and therefore can be studied from different aspects. However, as yet there is no indicator or indicators of structural change. Input-output analysis is widely used in analyses of linkages between sectors. Shift-share analysis is used as the traditional measure of contribution of structural change to aggregate growth. A new approach incorporating export diversification and product sophistication as aspects of structural transformation employs “product space” methodology. According to this new approach, relatedness between products is associated with the similarity in the inputs required to produce those goods.

In the present research, another aspect of structural change has been addressed – the process of reallocation of labor across sectors and its contribution to productivity growth. Following Timmer and Vries (2008) we use traditional shift-share analysis to decompose aggregate productivity growth into intra-sectoral productivity growth and the effects of changes in the sectoral allocation of labor.

Conventional shift-share analysis is used to measure the direct contribution of structural change to aggregate growth of labor productivity. As we have already shown in Chapter 2, decomposition into within and between components is performed as shown in the following equation:

$$P^T - P^0 = \sum_{i=1}^n (P_i^T - P_i^0) \bar{S}_i + \sum_{i=1}^n (S_i^T - S_i^0) \bar{P}_i \quad (2.1)$$

where P^T and P^0 are aggregate labor productivities in period T and 0, respectively, S_i^T and S_i^0 are the shares of sector i in total employment labor of sector in period T and 0, respectively, \bar{S}_i is the average share of aggregate productivity of sector i , and \bar{P}_i is average labor productivity of sector i .

Again, the first component on the right side is the intra-sectoral effect, which shows the growth of labor productivity within the sectors, and does not take into account labor shift during the analysis period. The second component is the sectoral effect, which captures the changes of labor share and multiplies and holds with the initial productivity levels. A positive sign for this effect means that there is a positive effect from reallocation, i.e. the labor is shifting from the less-productive sectors to more-productive sectors. A negative sign means that there is a negative effect from reallocation, i.e. the labor is shifting from sectors of higher productivity to less-productive sectors.

3.4 Data and Analysis

We use a dataset of employment distribution and sectoral distribution of GDP in constant prices of year 2000. The period of analysis covers 1991 to 2011. Value added per worker is a proxy for productivity per employee.

In order to identify the effect of inter-sectoral reallocation, data is divided into three periods. One period is 1991 to 1995, when the economy experienced decline. The period of recovery from 1996 to 2011 is also considered (Figure 3-4). Finally, the overall effect of the transition period from 1991 to 2011 is considered.

Results suggest that growth is affected by productivity within sectors rather than due to reallocation. The transitional recession from 1991 to 1995 did not bring a positive contribution from labor reallocation. During this period

adaptive changes took place.

Figure 3-4 Periods under Study

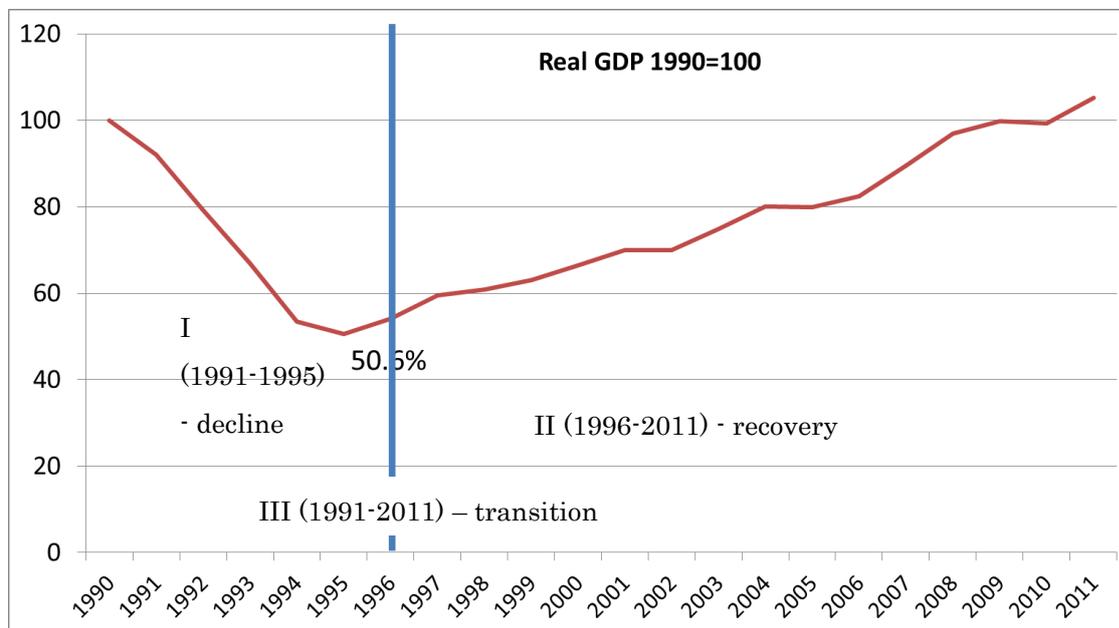


Table 3-1 Shift-Share Decomposition

	Period I 1991-1995 (decline)			Period II 1996-2011 (recovery)			Period III 1991-2011 (transition)		
	Within	Between	Total	Within	Between	Total	Within	Between	Total
Total GDP	-18.6	-3.3	-21.9	10.9	0.7	11.7	-5.2	-2.9	-8.1
Agriculture	-3.1	2.8	-0.3	7.4	-5.0	2.4	5.4	-1.4	4.0
Industry	-2.8	-3.6	-6.5	2.3	-0.9	1.7	1.6	-6.6	-4.9
Services	-14.3	-0.8	-15.1	3.5	3.8	7.0	-12.2	4.1	-8.1

Note: All figures represent percentage points.

The sum of contribution of sectors does not equal to total GDP because construction is not included in the industry sector.

Looking at the 1996 to 2011 decomposition, agriculture positively contributes to productivity growth at within- and negatively at between- effects, while services contribute due to increase in productivity. The effect of reallocation to services and from industry contributes negatively.

The effect of labor reallocation on productivity is negative in all three sectors. However, the recent decrease in the share of employment in agriculture was accompanied by improvements in productivity, which suggests that there was a positive effect of reallocation of labor on productivity. The decreasing share of industry in total employment (deindustrialization) contributes negatively. This may be explained by industry having the highest productivity among the sectors considered. The effect of the increasing share of services in total employment (tertiarization) on productivity is weak, and in recent years is negative (Figure 3-5).

During the period of economic decline (1991-1995), both within- and between- contributions to productivity growth were mainly negative, while the within- effect was more profound, particularly in services. During the period of economic recovery (1996-2011), productivity was also mainly driven by the within- component, and the shift towards services contributed positively. An interesting finding is that the within- effect in agriculture was highest, yet its reallocation effect was lowest (negative).

The impact of sectoral reallocation on overall productivity during 1991-2011 is ambiguous. In general, the contribution of sectoral reallocation of labor is insignificant, which suggests that the economy of the Kyrgyz Republic does not experience structural change, which is the key factor of its poor economic performance. Since the contribution of reallocation is negative in sectors with

positive within- productivity growth effect, we can conclude that the Kyrgyz Republic experienced growth-reducing structural change.

Figure 3-5 Effect of Labor Reallocation on Productivity: Agriculture

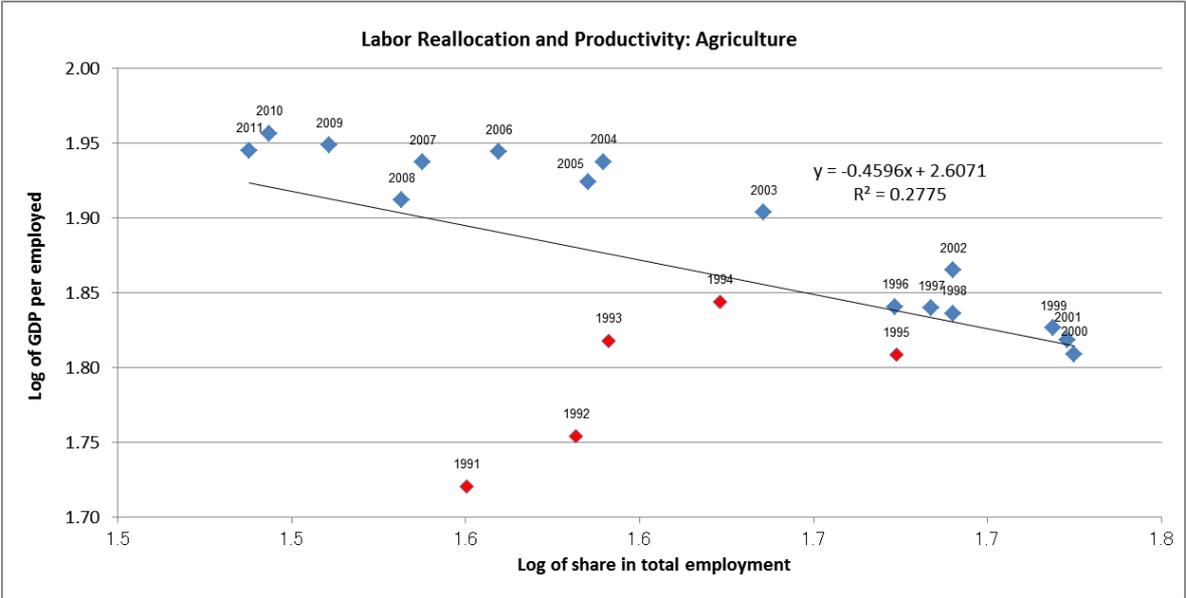


Figure 3-6 Effect of Labor Reallocation on Productivity: Industry

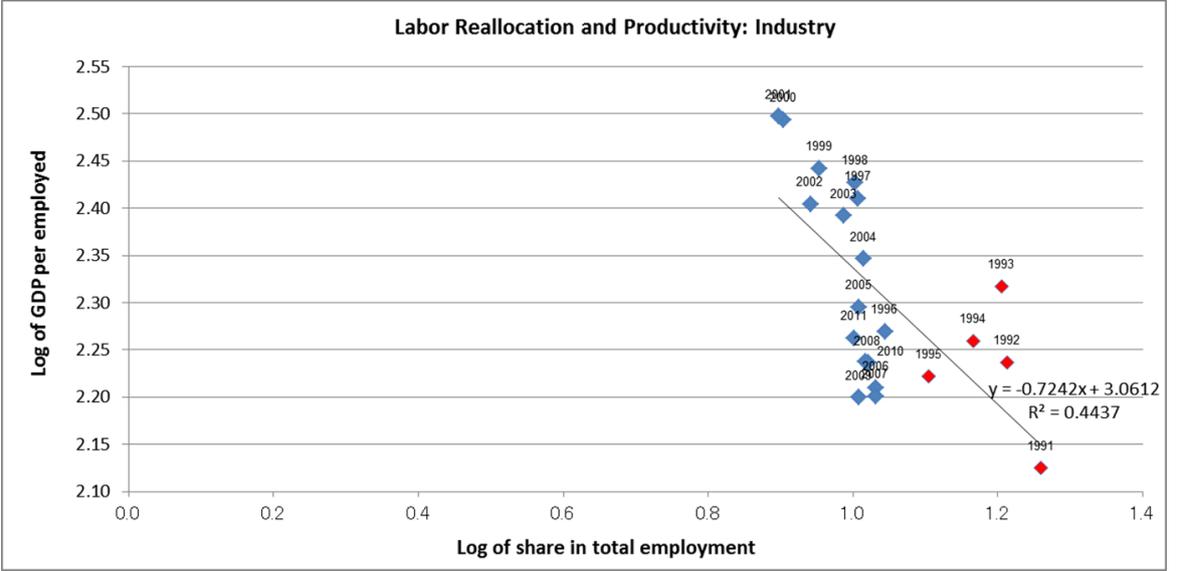
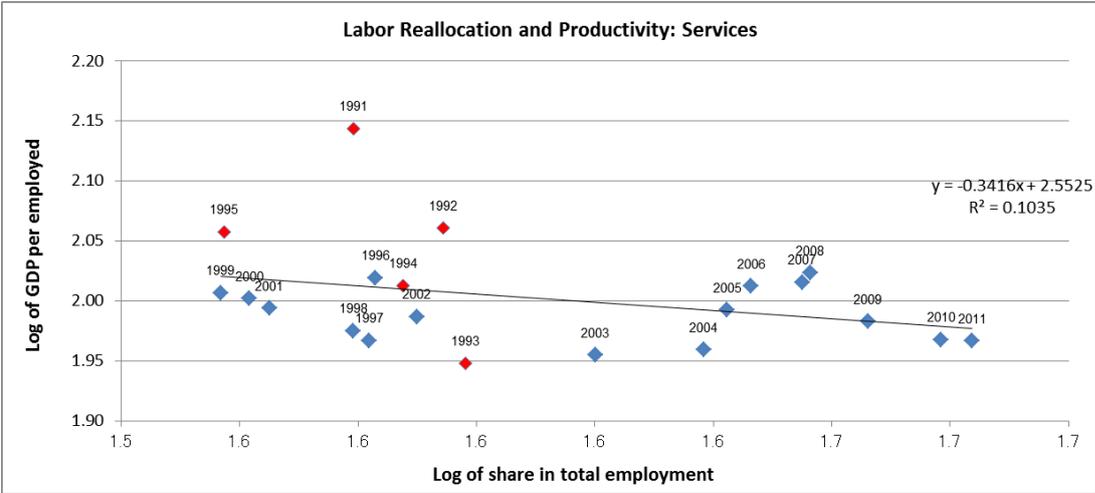


Figure 3-7 Effect of Labor Reallocation on Productivity: Services



3.5 Conclusions and Limitations of Research

This chapter empirically investigated the contribution of structural changes to economic growth in the case of the Kyrgyz Republic during transition to market economy. Structural change was expected to play important role, particularly in transition economies, when the structure of the economy changes from that inherited from central planning to that governed by market mechanisms.

We used shift-share analysis to decompose the effect on productivity growth of changes in shares of employment in three large sectors and to investigate how the process of structural change took place. This allowed us to see if reallocation of labor from one sector to another contributed to productivity growth. As we expected, there was a reallocation of labor to services, as activities which were suppressed under central planning contributed positively. At the same time, the effect of deindustrialization is negative.

Although some results that were expected from the shift-share analysis have been confirmed, many issues remain unresolved. These analytical issues

are not only due to limitations of the shift-share analysis, but also due to general limitations of the conventional structural change approach.

One problem is that despite disaggregation of economic activity, the level of aggregation remains high. It does not allow us to reveal changes within each sector. This does not reveal whether structural reallocation is active, driven by emergence of new activities, or passive reallocation within existing activities, as a result of adaptation of inherited distorted structures to new market-based incentives. Another limitation is that shift-share decomposition, as well as the structural change approach, is currently a descriptive rather than an analytical device for empirical purposes. It does not provide information on the causes of structural changes. It does not allow us to evaluate the dynamism or lack of dynamism of structural change.

Also, the structural change approach views sectors as independent, in which relations between sectors are based on effects of reallocation. This may not be true for modern economies, where all sectors are interrelated. Relations between the industrial and service sectors are symbiotic relations.

The most important issue with shift-share decomposition, as well as the structural change approach, is the causes of structural change. However, this is not only important issue to investigate because of the absence of data, or proper techniques or models. It is important because of the absence of proper clear concepts, categories and frameworks which would allow researchers to interpret available data. Finally, there is a problem in interpreting results of analysis owing to the weak economic performance of the country under study. Analysis of growing and stagnant economies requires different analytical tools. The following chapters address these issues and suggest policy implications.

Chapter 4 Economic Growth and Economic Change: Conceptual Considerations⁴

It is well recognized that a centrally planned economy could not provide sustained increase in standards of living comparable to those seen in developed market economies. The transition experience could not answer the question of what are the main features of market economies that have allowed western capitalist economies to achieve sustained increases in standards of living. At the same time, what has brought industrialized, centrally planned economies to stagnation and collapse? How does the transition to a market economy relate to sustained growth?

This chapter addresses these issues by reconstructing the mechanism of economic growth in the conceptual framework of sustained growth. Motivated to find the uniform mechanisms and underlying forces that drive structural change and economic growth, we provide discussion on the sources of structural change. This consideration permits the use of the structural change approach not only as a descriptive device, but as analytical tool for the analysis of the factors of economic growth.

4.1 Three Sources of Economic Growth

In conventional growth models, economic growth is presented not as complex socio-economic phenomenon, but rather as simple mechanical process in which accumulation of capital and productivity growth play a key role. How to achieve economic growth is merely a “technical” matter. However, there are two main problems which make it difficult to apply traditional growth models to

⁴ This chapter is adapted and revised version of part of the paper Butabaev (2015).

market economies. One problem is aggregation of production. The traditional notion of growth focuses largely on quantitative changes in the aggregate output and does not capture many structural and qualitative changes that take place during the process of growth. Leading theorist of economic growth Solow admits that “pure production-function reasoning at the aggregate level may miss an important part of the story” (Solow, 2007, p. 17). In these models a firm is reduced to a productive activity and then this simple version is enlarged to the size of the economy. However analytically convenient such approach may be, it leaves no place for the key elements of a market economy – market, entrepreneurship, and competition. That shortcoming makes it no different from the model of the planned economy. As Baumol correctly notes, none of the growth models “has any attribute uniquely related to free-enterprise economies rather than some other economic form” (Baumol, 2002, p. 265). The second problem is the equilibrium approach, which does not describe “restless” (Metcalfe, 2002) ever-changing capitalism, because the growth of knowledge which it generates is not brought by forces of equilibrium, but rather of disequilibrium. The market is not a force that moves an economic system to equilibrium, but rather one that creates disequilibrium.

From these considerations, the problem of developing a formal model of economic growth of a market economy is therefore a conceptual one. It requires the researcher to develop a framework that would characterize a market economy as a mechanism of continuous change and transformation.

We suggest that economic growth should be viewed as a truly long-run phenomenon, and not just as an extrapolation of short-run events. In the long run, not only quantitatively, but qualitatively different events take place.

Therefore, economic growth should be viewed in terms of both quantitative and qualitative transformation. Finally, economic growth is a continuous and sustained process.

In order to address these issues, we disaggregate economic growth into three broad conceptual sources: *increase*, *structural change* and *change*. Such distinction is also required for methodological reasons.

Economic growth traditionally means quantitative change or increase in aggregate output. This quantitative growth paradigm also includes increase in capital, productivity growth, savings rate, etc. In other words, the *increase* category includes everything that can be measured quantitatively in the dimension “increase-decrease”. We do not associate it with a particular growth theory or model, as this paradigm of growth can be applied to most of them, particularly with steady growth models. This dominating paradigm of growth, however, fails to provide consistency with other important facets of economic growth, i.e. structural change and qualitative change.

Our point, however, that this quantitative increase of output or factors is only part of the whole process of economic growth. For this reason, focusing solely on quantitative increase and neglecting qualitative and structural changes brought about by such an increase does not allow one to call such an increase economic growth, as a long-run phenomenon. Without changes in the structure of an economy, such an increase in the long run is simply impossible.

The most profound feature of growth is that during the process of growth the structure of the economy fundamentally changes in terms of the composition of output and employment. Economic growth models are founded on the representation of an economy as an aggregate one good (one sector) model, in

which economic growth is represented as a linear process. However, such representation largely neglects the structure of the economy and its structural changes. Clark (1937), Kuznets (1966) and Chenery and Syrquin (1975) have established links between economic structure and level of development. They argue that as an economy grows, production shifts from agriculture to manufacturing and then to the service sector. At the same time, the causal relation between growth and structural change is not straightforward and one-way (Dietrich, 2009). Economic growth brings about changes in the structure of output and employment, at the same time these changes affect growth. Kuznets (1966) sought structural change as the outcome of economic growth. Felipe et al. (2010), among others, emphasize the role of structural transformation in growth and development. Metcalfe (1994) views the problem of growth as a problem of adaptation of expanding economic systems by changing the allocation of resources and the composition of demand. Since economic activity is ordered and structured, it is therefore natural to assume that any increase would affect that order (structure). Kuznets (1973) distinguishes three main causes of structural change observed in developed economies – the differential impact of technological progress, the differing demand income elasticity and the comparative advantage in foreign trade. Indeed, structural change is an important mechanism that can ignite and accelerate growth through industrial upgrading; however, it can provide no answer to the question of what sustains growth. Structural change does not start with industrialization and end at a service-based economy. Sectoral-level aggregation remains significant. It does not reveal significant changes that continue to take place within sectors. Structural change continues in the form of

evolution of sectors and, most importantly, in the emergence of new activities, which replace old ones. In a globalized economy, some countries may skip the industrialization phase and achieve middle-income level by moving from agricultural to service-based economies (Mandeville and Kardoyo, 2009).

The structuralist approach is based on comparing the respective evolution over long time periods of only three very broad independent and homogenous sectors of economic activities. Jorgenson and Timmer (2011) conclude that the classical trichotomy among agriculture, manufacturing, and services has lost most of its relevance in describing structural change.

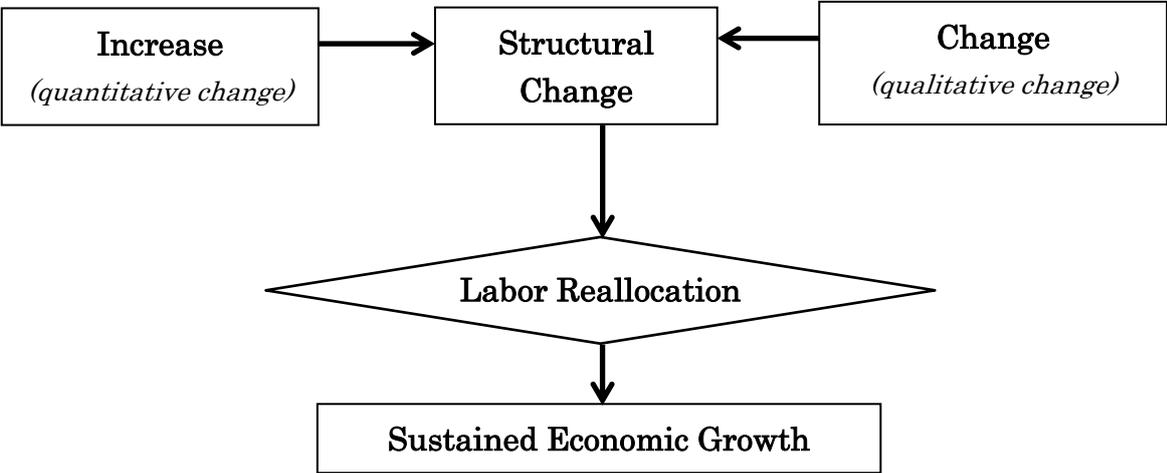
Reallocation of labor performs the function of the device that links structural change to economic growth by reallocating labor from less-productive (low value) activities to more-productive (high value) activities. Resources shift from activities experiencing slowdown of productivity towards activities with increasing productivity in a process of continuous improvement in allocation of resources. Thus, structural change contributes to overall productivity growth through resource reallocation, working as a source of growth (United Nations Industrial Development Organization, 2009). Therefore, sustained economic growth is not possible without continuous structural change and continuous reallocation of labor.

Economic growth is not only the process of quantitative increase and structural change; it entails profound qualitative changes, which cannot happen only as a result of increase of aggregate output or productivity. To better understand how these qualitative changes take place, we need to separate them from the quantitative category of increase into qualitative category of *change*. Change is often used as a metaphor in theories of development, in which it is

thought of as a by-product and a consequence of quantitative growth. Within growth and development theories, no formal attempt has been made to explain change explicitly.

Before we try to explain in a more formal way what is behind the metaphor of change, we bring these three sources of economic growth together in a consistent and complete framework of economic growth (Figure 4-1).

Figure 4-1 Mechanism of Sustained Economic Growth



Structural change is influenced from the increase side by uneven increases in productivity rates and from the change side by qualitative material changes. It would be correct to say that economic growth is not only the process of increase, but equally it is a process of change. It can be said that economic stagnation is not the absence of growth or slow growth; it is equally the absence of change. As Rosenberg and Birdzell stated, that “Growth is, of course, a form of change, and growth is impossible when change is not permitted” (Rosenberg and Birdzell, 1985, p. 34).

In this framework, structural change represented both as a qualitative and

quantitative phenomenon. Our framework clearly indicates that in order for growth to be sustained all three sources have to be enabled. Structural change can be caused from the increase side (productivity growth), but it needs to be supported by the change side in the form of emergence of new activities. If structural change is caused by the emergence of new activities, it induces the “increase” part by technological advances.

This framework brings together “alternative” views on development; however, they are complementary to each other. In this framework, we place structural change and qualitative change not as by-products of increase in aggregate output, but as the most important sources of sustained long-run economic growth. Each source of growth plays a different role at different stages of development. At the stage of industrialization, capital accumulation, productivity growth and human capital accumulation play a key role. However, goods and physical capital are not accumulated physically. At some point in time, old (not necessarily physically old) machines and goods are being replaced by qualitatively new machines and goods. Economic growth does not mean producing more of the same goods, but it necessarily entails a shift to new activities, and abandoning old activities. The driving force in such a shift is the process of innovation, which is a qualitative change. At higher levels of development, growth is not dependent on capital accumulation or productivity increase, but on ability to continuously generates qualitative changes. Such qualitative changes are not limited to material changes (innovation), but also include social and institutional change. The role of continuous qualitative change as a source of sustained economic growth increases even more as development proceeds.

Kuznets (1973) thought that technology impacts different sectors in different ways, working as a cause of structural change. We can equally say that the pace of generation of new goods is different across sectors, and these new goods have different impacts on the structure of the economy from the change side.

In conventional growth theories, economic growth is presented as a linear process of increasing output. In the structural change approach, development is presented as a stage process. In contrast to this economic change paradigm, economic growth and development can be viewed as a process of continuous change (Table 4-1).

Table 4-1 Key Differences between Approaches to Development

	Economic growth theory	Development economics	Economic change
Forms of growth and development	Linear increase of aggregate output	Stages of development	Continuous change
Classification of economies	Low-, middle-, high-income	Underdeveloped, developing, developed Pre-industrial (agrarian), industrial, post-industrial (service-based)	Changing, not-changing (stagnant)

The concept of change which we brought explicitly in the framework of economic growth needs further discussion. Indeed, explaining what change is poses a theoretical challenge not only for economics, but for science in general. Change is not a category of natural science; it is a philosophical, metaphysical category which so far is difficult to conceptualize and formalize. Classical mechanics, the mathematical approach of which is adopted by neoclassical

economics, simply cannot deal with category of change.

The distinction between the quantitative category of increase and the qualitative category of change is very important, because of the use of completely different analytical tools when explaining these categories. Methods which are traditionally applied to quantitative categories (linear, static or dynamic analysis) become inadequate when explaining qualitative changes. Particularly, describing change with static, nevertheless measurable, categories or explaining qualitative change as a function of quantitative variables brings misconceptions about change and is therefore misleading. Bringing discussion about the nature of change into analysis would allow one to better explain qualitative phenomena in a more formal way. Although change is difficult to properly explain, measure and predict due to its non-linear properties, it can be better understood if viewed not as a one-time event, but as a continuous process.

The analysis of change in economics requires handling categories which are different from quantitative change (more-less). Capacitive change, often referred as technological change, which can be measured in terms of physical capacity (size, speed, weight, etc.), is also a form of quantitative linear change. Material qualitative changes cannot be properly described as objective truth, as physical phenomena and expressed through quantification. Even though a change necessarily involves time, it cannot be properly analyzed with categories of time (past-present-future).

Qualitative material change is a human perception, but how can we formally explain qualitative change? One step is to say that change takes place when new replaces old. This means that there are two processes which generate change. First, it requires creation of the new (novelty) and second it requires

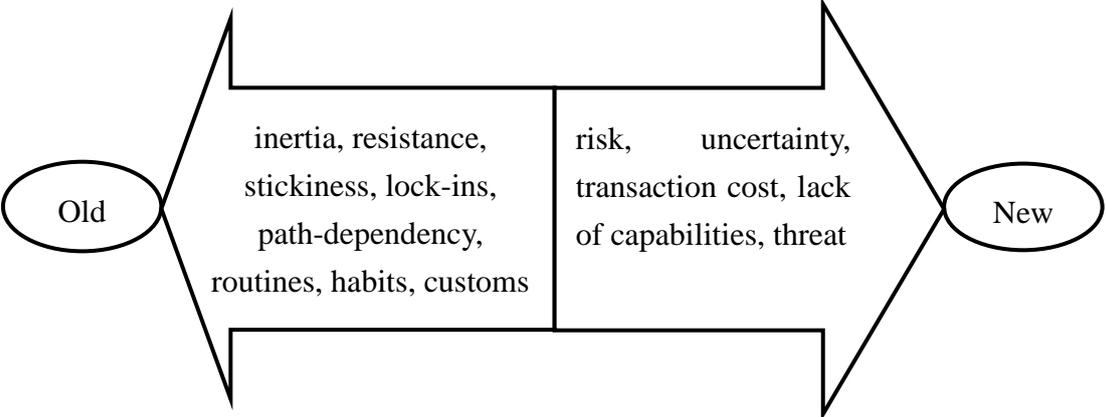
abandoning of the old. Again, different from any natural science, which can explain change through quantification, in social science change involves a perceptive relation between new and old. The difficulty in formally describing change in economics arises because of the subjectivity of what is old and what is new. New and old are interrelated categories. New is considered to be new if measured against already existing things, and old is considered as old only when new emerges. Viewing change as creation of new only, which can be presented as a linear process, leads to misunderstanding the true process of change. Change takes place when new is created and accepted and old is rejected. However, this does not happen instantly, as in the material world. Emergence of the new and abandoning (destruction, loss) of the old are two counteracting processes. Removing the old does not necessarily lead to the emergence of something new and the emergence of something new does not immediately replace something old. Change is not a single event in which new is immediately accepted and instantaneously replaces old. Change is a process that takes some time, when new and old co-exist together, even when they belong to different periods of time. New replaces old gradually. There is natural inertia or even resistance to change which makes it difficult for change to happen, makes it a time-consuming and path-dependent process. Radical change, when the new instantaneously and completely destroys the old, is extremely rare. Radical changes require either destruction or painful adaptation. Most changes are incremental and therefore continual and endogenous.

The meaning of change is hidden behind many qualitative concepts, which represents particular cases of change. They include such concepts as invention,

innovation, technological progress, social change, reform, improvement, invention, transformation, etc. In our context, transition is also a form of change. The emergence of the new is a very difficult process due to factors associated with it, such as risk, uncertainty, transaction cost, lack of capabilities, and even threats. Counterforces of change are behind such concepts as resistance, inertia, momentum, path-dependence, habits, lock-in mechanism, etc. (Figure 4-2). The working of these two forces represents change as a process of choice between old and new.

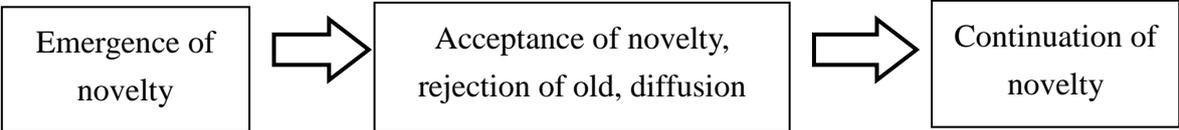
However, change cannot be explained properly through the standard prism of rational choice paradigm, because it cannot be reduced to the act of rational choice between old and new as existing alternatives. Change is founded on two forms of human action which are distinctly different from rational choice. On the one hand, change is a purposeful and intentional act, which is driven by unique human ability to act creatively and to bring into existence new things. On the other hand, resistance to the new makes change hard to generate, considering that resistance to change is rather the norm at individual, organizational and societal levels. Paraphrasing Keynes, we can say that in bringing change “the difficulty lies, not in the new ideas, but in escaping from the old ones” (Keynes, 1936, p. viii).

Figure 4-2 Change Perception in Relation between Old and New



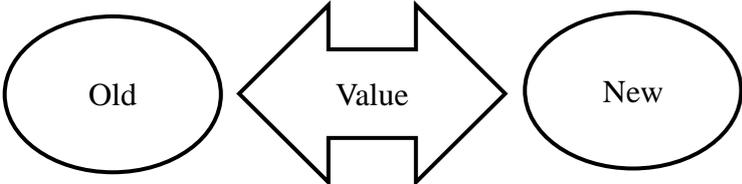
Recognizing that the concept of “new” belongs to the category of change brings about better understanding of how novelty emerges, and replaces the old in being adopted, diffused or disseminated, as well as how long it remains new (Figure 4-3). In the process of change, creation of the new and destruction of the old are not necessarily two separate processes. Creation of the new and destruction of the old is an organic, endogenous, mutually-dependent process, which means that transforming the old into the new is also form of change.

Figure 4-3 The Process of Change



Change paradigm is a challenge for most existing theories of value, which are quantitative. Debate on what is (economic) value is difficult without categories of change, such as new and old. The emergence of the new has an effect on the value of the old. However, change means that both the old and the new coexist for some time. The value indeed exists because of this fact (Figure 4-4). The origin of this value is the underlying force which drives economic growth, as the increase in value of goods and services produced.

Figure 4-4 Change as the Process of the Emergence of the Value



What distinguishes humans from animals or machines is the perception of change and the ability to generate change in the form of creativity. Change is

the result of human intention and action, and therefore it cannot be explained properly using methods of natural science. Evolutionary economics represents change in analogy of the process of selection in biology (Witt, 1992), which may be inappropriate. Neoclassical economics focuses on choice as the ultimate element of purposeful rational human action. Human relation to change and novelty is neglected. While it would not be an exaggeration to define economics as the study of human-made change, at the same time, no school of economics can address change as a man-made socio-economic phenomenon.

4.2 Economic Growth and Economic Change

In the conventional more-is-better paradigm of growth, it has become a tradition to equate economic growth with increase in output. This makes it purely quantitative phenomenon. However, economic growth in fact represents qualitative change or economic change. To prove this, we need to distinguish between gross output and gross value added. Economic growth can be equally interpreted as an increase in aggregate output and increase of the gross value added. Statistically, economic growth as increase of GDP is measured as the increase of value added of final goods, which makes it another representation of quantitative physical increase of output.

The fundamental difference between increase in output and increase in gross value added is the sources of their growth. If an economy is represented as a basic one-good model, then output of production can grow only by producing more of that good. In contrast, value added can grow by either producing more of the same goods or by producing qualitatively new goods, goods with higher value added. In this process of emergence of new activities, part of the labor pool needs to be reallocated to engage in these new activities, which causes changes

in the structure of the economy. Economic growth therefore means not only an increase in physical output but qualitative improvements expressed as an increase in value added.

The conceptual framework described above (Figure 4-1) shows that economic growth can be achieved either by producing more of the existing goods and services or by creation of activities and new goods. The latter is a form of change. The problem, however, is that how to increase production of existing goods is a technical matter. The emergence of new goods, while it requires some technology, is difficult if we view this process as change. The difficulty of this process is described earlier in this chapter.

Official growth statistics capture changes in quantity and quality as increase in valued added, yet they do not tell the whole story. GDP statistics hide how much gross value added has been produced by producing more of same goods and how much value has been added by producing qualitatively different and new goods.

In some sectors, growth of value added is possible only by producing more of the existing goods. This may be the case for primary sectors such as agriculture and mining. Growth of such sectors can be induced by improving technological capabilities. However, in some sectors, the possibility of generating more value added simply by producing more output growth is limited because physical output volumes may not matter. In such activities, growth of value added is possible only by continuously creating qualitatively different goods and services. In such sectors, growth is not constrained by “technological possibilities” but “creative capabilities”. The “productivity” of activities producing books or music, for example, is not constrained by technological capabilities of equipment but by

creative abilities of humans. The growth in such activities is driven by “creativity”, not simply by “productivity.”

This discussion brings new insight on the causes of structural change and economic growth. One is of particular importance: structural change which contributes to economic growth is the one which is driven by creation of new activities. Without emergence of new activities, structural change does not take place.

4.3 The Process of Economic Change and Mechanism of Economic Growth

4.3.1 Material Change

Innovation is a very broad concept. It can include anything of human design. Innovation can be viewed as the introduction of new goods or new methods or improvement in technology for the production of existing goods. Therefore, the distinction between technological change and material change can help bring clarity in discussion on innovation. Innovation below refers to emergence of new activities, new goods and qualitative improvement of existing goods. This is what we call *material change*.

Structural change means not only a shift in relative shares of employment between particular production activities, but most importantly it means the emergence of new activities. It necessarily entails the process of emergence of new goods and services – in other words, material change. Thus, product innovation is the ultimate driver of structural change and therefore economic growth. Stokey (1988) and Aoki and Yoshikawa (2002) emphasized the importance of the introduction of new goods for sustaining demand and economic growth. New goods have higher value than old ones, thus the process of innovation reflects the basic motion of structural change – the shift of activity

from less-productive (old goods) to more-productive (new goods). Structural change is a result of the continuous process of change. Continuity of product evolution is a necessary condition for sustaining structural change and therefore growth.

The mechanism of generating novelty through innovation is substantially different in centrally planned and in market economies. While in the former it is directed, centralized, planned and its pace is predictable, in a market system the direction of innovation is mostly unpredictable and decentralized. Innovation in free-market economies is facilitated by varieties of market mechanisms and shaping their institutions, most of which are neglected in traditional models. While being necessary, private property is not the only necessary institution and not a sufficient institution for innovation in market economies. Two widely-neglected mechanisms of innovation at the market process are competition and entrepreneurship.

Competition promotes and disseminates innovation. The presence of competition facilitates this process in following way: firms try to be different, and at the same time they imitate successful innovations of competitors, adding their own small, incremental changes. Thus, competition through imitation creates diversity, which diffuses innovation and, as a result, accelerates the evolution of products and replacement of old products. The imitation mechanism of competition works as a mechanism of change through organic transformation of old into new. Competition is not only about rivalry for price or output. We consider competition as a mechanism that facilitates innovation through its mechanism of imitation and incremental innovation.

It is commonly believed that innovation is knowledge, and in empirical

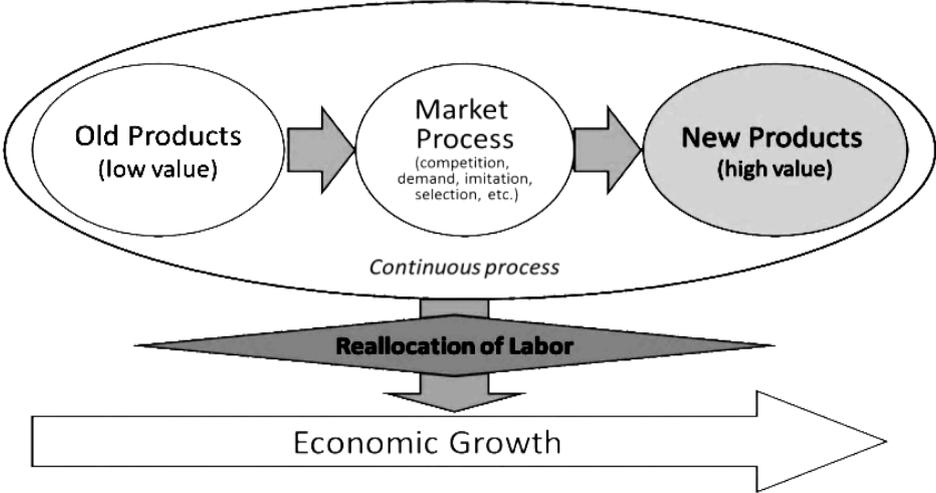
research innovation is often associated with either spending on research and development (R&D) or number of patents or creation of new firms. This is a misrepresentation of what innovation is. R&D spending or number of patents themselves do not guarantee the emergence of new goods on the market. R&D spending represents just a cost, and patents are just an idea, which makes them poor proxies for innovation. Besides that, viewing R&D as the only indicator of innovation focuses only on science- and research-based forms of innovation, which are associated with hi-tech industries. This excludes large numbers of other activities, mostly medium and low-tech activities, where new product innovation takes form of introduction of numerous non-technological novelties such as design, marketing or branding, which are essential in a market economy. Besides that, non-technological innovations are easier to imitate. Any activity that generates modifications of products intensely can be considered as innovative. Efforts or costs spent on innovation processes do not necessarily mean success of an innovation activity. Thus, innovation efforts should necessarily entail commercialization of ideas or discoveries through their commodification. Commercialization of innovation is important and is probably the most difficult part of the innovative process, which brings innovations to the market for evaluation. Commercialization means embodying knowledge into products or services that can be tested by the market. Structural change is not shaped by efforts valued in how much is spent on their development. Structural change is shaped by goods or services which have value for users. From this point of view, the best indicator of innovative activity would be the number of new products introduced to the market within some period, including modified versions. However, to our knowledge, no collection of such statistics exists.

Not all innovations contribute to structural change, because not all innovations are successful. Structural change is directed by successful innovations. Innovation is a process of trial and error. Competition not only accelerates the process of innovation through “experience of others” but also works as a collective learning process. Market process is a process of economic communication; it is a mechanism where experiments with innovation, their testing, learning, and adaptation take place. Market process is concerned with production of change and with adjustments to changes (Foss, 1998). Successful innovations show where innovative efforts are profitable, and failures show firms what to avoid. Market mechanism directs innovative efforts of firms. Market process eventually determines the direction and speed of structural change. Commercialization of incremental innovations makes this process less risky, compared with commercialization of genuinely new products. The slow pace of introduction of new products may indicate high levels of uncertainty related to the commercialization of innovations. The market is the place where the value of novelty is created; without properly functioning market mechanism, creation of new value and establishing value for new products is impossible (Figure 4-5).

Entrepreneur and firm. The process of human-made change necessarily involves someone who generates the change. There is no need to introduce a new category, since this task can be successfully assigned to entrepreneurs. The misconception of what innovation is, as discussed above, places engineers, researchers or inventors at the center of the market economy and leaves no place for entrepreneurs in this process and in economic theory. Often entrepreneurs are presented as self-employed individuals, as creator of new

small firms, and their contribution to growth is considered only as generators of employment (e.g., Audretsch and Thurik, 2001). This narrow view of entrepreneurs has led to the exclusion of whole categories from the category of entrepreneur, particularly existing large firms and their employees.

Figure 4-5 The Process of Innovation and Economic Growth



North (1990) described an individual entrepreneur as an “agent of change”. Therefore, the ability to generate change and be “alert to change” can make anyone an entrepreneur. An entrepreneur does not invent herself; she discovers opportunities that are created by others. She explores possibilities for the commodification of ideas and discoveries. She experiments and tests her innovation in market process. Finally, she is the only one who takes risk for her own actions. Entrepreneurship is a category which includes variety of actions, such as taking risk, or exploring or creating opportunities, but most importantly it is an attitude to change and ability to change – in other words, innovativeness and flexibility⁵.

⁵ For an extensive overview of entrepreneurial functions see, for example, Grebel (2004), Rocha (2012).

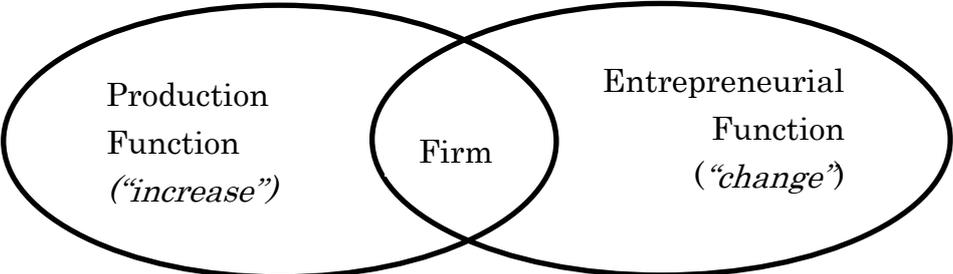
In endogenous growth models, entrepreneurs do not hold an explicit position. Our framework places entrepreneurs as agents of change in a central position. Here we distinguish between initiating and imitating entrepreneurs. An innovator creates novelty, an initiative entrepreneur tests it on the market, and imitative entrepreneurs replicate the successful innovation. For imitative entrepreneurs, others' innovations can "pave the way" for one's own innovations (Holcombe, 2007). In other words, an entrepreneur makes his discoveries in the market place. What makes an entrepreneur behave like a creative entrepreneur is opportunities created by competition. Profit motivation itself is not a reason for innovative behavior. In the absence of competition, profit turns into economic rent, which brings about destructive rent-seeking entrepreneurs.

In a free market economy, firms perform not only production functions, but also entrepreneurial functions (Figure 4-6). If production function can be described with mathematical expression of (e.g. Cobb-Douglass), then an attempt to describe entrepreneurial functions in proper mathematical expression is impossible, because entrepreneurial activity is expressed in terms of "change." Moreover, the desire to express it by substituting it with measurable, static or linear variables or embed entrepreneurial abilities into production function as factor of production may lead to misrepresentation of what the entrepreneurial function of the firm is. We can say that the production function is dependent on the entrepreneurial function, because combination of factors, their productivity and how much is produced are ultimately determined by what is produced.

The distinction between "increase" and "change" we made earlier is natural from the point of view of the firm. A firm is not only a production unit (factory,

plant), but it is also an innovative unit which introduces new products. Firms introduce new goods to escape from diminishing returns, and in turn, the introduction of new goods requires different technology and amount of factors. Production of goods requires both productive capacities and creative capabilities.

Figure 4-6 Firm in a Market Economy



4.3.2 Socio-economic Change

Changing the material world also entails changing attitudes to material things, which means changing values, beliefs, and social norms. Material change does not proceed in isolation from social aspects. Innovation is embedded in institutional and social context.

Institutional and social change. Although perception of change is unique to humans, the degree of perception of change and attitude to change and novelty differs between individuals, cultures and stages of development. Fast-changing and slow-changing cultures co-exist in the modern world. Innovation is embedded in social and institutional contexts.

Different stages of economic and technological development are referred to different level of social organization and institutions. The relation between material and social change is not one-way. On the one side, changes in social

customs and norms have effects on all other economic relations, which eventually translate into material change, and at the same time material innovation requires new institutional arrangements. Innovation involves institutions which in turn supply knowledge and skills which underpin innovative activity (Metcalf, 1994). Although innovation is driven by market competition, competition itself is an institution of market economy and entrepreneurship is its social aspect. Innovation and entrepreneurship are distinguishing qualities of the “culture of change.”

Institutions fundamentally direct entrepreneurial activities towards productive, unproductive or destructive forms (Henrekson and Sanandaji, 2010). North defines institutions as “humanly devised constraints that structure political, economic and social interaction” (North, 1991, p. 97). Institutions, as well as technology, matter for economic growth, but we cannot answer which institutions matter, equally as we cannot say which technology matters. As a technology, institutions are not static, they evolve. Since they are interdependent and complement each other, then what is more important is that how they coevolve. North views the role of institutional change as the incentive for economic change: “Institutions provide the incentive structure of an economy; as that structure evolves, it shapes the direction of economic change towards growth, stagnation, or decline” (North, 1991, p. 97).

Nelson argues that “long-run economic change must be understood as involving the co-evolution of technologies in use and the institutional structures supporting and regulating these” (Nelson, 2008, p. 9). Slow institutional change may not be matched with the faster pace of technological change, which may slow down technological change. Imported formal institutions aimed at

facilitating technological change may not work, because informal institutions may be rigid. Some social structures – for example, collectivism – may resist innovation as it would threaten informal institutions on which the system is established. Innovation hardly takes place if social values and norms do not accept (or even reject) new goods and services. For new things to emerge, first a changing attitude to them is required, which involves changing cultural norms.

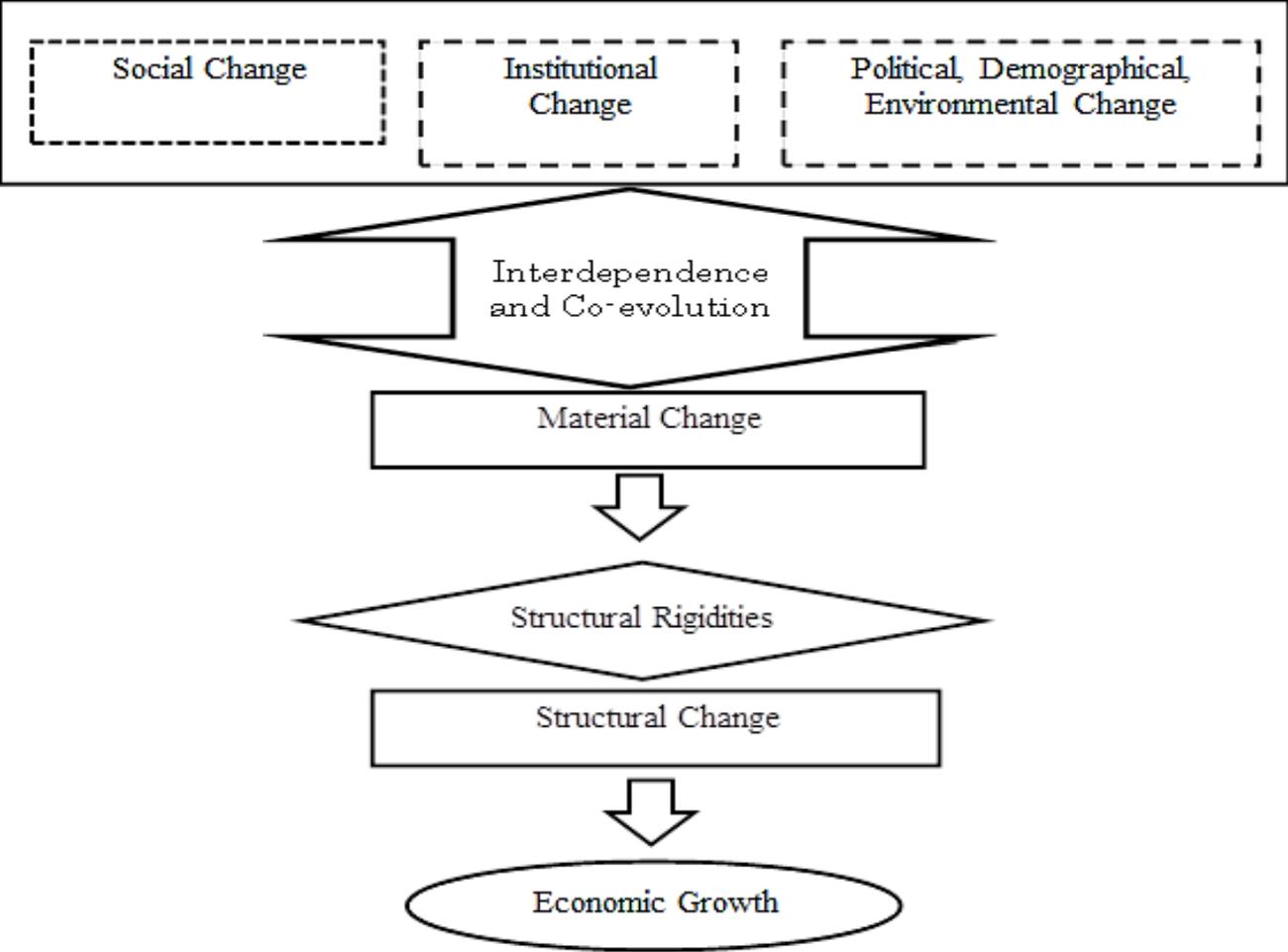
There could also be lock-in mechanisms or social inertia, which result in either inability or unwillingness to change (Ahrne and Papakostas, 2001). Stagnant economies are not only stagnant structurally; they are stagnant technologically, institutionally and socially. The scope of our study does not allow us to fully describe interaction between technological, institutional, and social changes. Of course, there are also factors of demographic, political, and environmental change, which put pressure on the structure of an economy, but we do not include them in our discussion.

Structural change is a mechanism that is necessary for an economy to adapt its structure to technological, institutional, social and other changes. Structural change is a “complex, inter-twined phenomenon” (Matsuyama, 2008) and structural adaptation to change requires a significant degree of economic flexibility. According to Kuznets “some structural changes, not only in economic but also in social institutions and beliefs, are required, without which modern economic growth would be impossible” (Kuznets, 1971, p. 348).

Absence of structural change may have negative consequence for economic growth, since rigid or stagnant economic structures lead to misallocation of resources. Thus, the flexibility of an economic system is a crucial factor facilitating structural change. There are numerous factors which can cause

structural inertia or structural rigidity and impede resource allocation and hinder change and growth. Some of them are natural, such as labor market rigidity, capital market rigidities or formal institutional rigidities. There are systemic market distortions such as absence of competition, domination of monopolies, price distortions, rent-seeking behavior and protection of non-viable enterprises through mechanisms of soft-budget constraints and weak absorptive capabilities of economy (e.g. lack of entrepreneurial abilities).

Figure 4-7 The Process of Economic Change and Mechanism of Economic Growth



Development is the continuing process of the generation of change and adaptation to this change. The ability to adapt structurally to technological

changes by reallocating resources to new activities is a crucial factor that is essential for economic growth (Killick, 1995).

Figure 4-7 demonstrates how all elements of change interact in the process of economic change and result in economic growth. Economic change encompasses technological, social as well as institutional changes.

4.4 Conclusions and Implications

In this chapter we developed a conceptual framework which brings together three sources of economic growth: (1) conventional, quantitative increase in output which focuses on capital accumulation and technological progress, (2) growth through reallocation of factors among sectors and (3) qualitative changes, particularly the emergence of new activities. This chapter focused on qualitative material changes which are necessary to sustain economic growth. These changes do not take place in a mechanistic manner, as quantitative changes and involve changes of entire economic and social systems.

This framework is the first step in understanding qualitative changes as sources of changes in the structure and source of economic growth. Discussion of the concepts related to economic growth and structural change has brought a clearer understanding of sources of sustained economic growth.

Sustaining structural change is necessary for sustaining growth. Sustained economic growth is determined by a country's ability to continually generate new activities and continuously reallocate factors, particularly labor, towards these activities.

Introducing qualitative changes and distinguishing material change from technological change allowed us to explicitly bring entrepreneurs and competition into the mechanism of economic growth. It allowed us to clearly see

the role of the market in economic growth, which is not as a mechanism of equilibrium but as a mechanism of change. One of the tasks for future research is to formally explain relation between activities that are driven by increase and those driven by change.

Chapter 5 Structural change and Economic Growth: Policy Implications for Transition Economies⁶

The economic crisis 2008-2009 and the following weak recovery leading to prospects of prolonged economic stagnation across transition countries motivated many economists to reconsider what we know about development and suggest viable alternatives for transition policies. This chapter highlights current problems in transition economies, structural changes experienced during transition, review of policies facilitating structural change. Based on the conceptual framework from the previous chapter, policy implications for transition economies are suggested.

5.1 Long-Run Challenges for Transition Economies

The global financial crisis of 2008-2009 had a severe impact on the transition countries of Central and Eastern Europe and of the former Soviet Union, which experienced sluggish recovery turning into prospects of prolonged economic stagnation (Table 5-1, Figures 5-1 and 5-2). This crisis also tested the vulnerability of growth strategies in transition economies and revealed many problems of transition reforms.

The very title of the “Transition Report 2013. *Stuck in transition?*” of the European Bank for Reconstruction and Development (EBRD) (European Bank for Reconstruction and Development, 2013) clearly and precisely describes the current economic and reform situation in post-socialist economies. The EBRD report raises concern that the “transition region does indeed face a serious

⁶ This chapter is adapted version of the paper Butabaev (2015).

long-term growth problem and that, given the current policies, convergence with Western living standards . . . will not be achieved in most countries” (European Bank for Reconstruction and Development, 2013, p. 11).

The economic crisis of 2008-2009 exposed several long-term vulnerabilities among transition economies. One is over-reliance on foreign direct investment. Another is misdirection or incompleteness of transition reforms aimed at addressing sustained economic growth. The EBRD Report rightly indicates that the causes of reduction in long-term growth prospects, although they have coincided with the crisis, are only partly related to that crisis. The future prospects of stagnation across transition economies suggests that the fundamental problems of centrally planned economies remain unsolved in the sense that many important lessons from the failure of centrally planned systems have not been learnt. For transition economies, economic growth was simply sought as an indicator of the progress in transition reforms, as liberalization, privatization and stabilization (Staehr, 2003; Falcetti et al., 2006; Dillon and Wykoff, 2002). The ultimate goal of transition reforms, to “put (*transition countries*) on the path of sustained growth” (Kolodko, 1999), has not been achieved because transition policies did not address economic stagnation, as a fundamental problem of the socialism inherited by transition countries.

5.2 Structural Change during Transition

At the beginning of transition, the share of the labor force employed in industry was higher in all transition countries compared to countries with similar levels of per capita income. This was a result of the socialist model of development through industrialization with particular importance of industry over agriculture and services. During the transition period, similar structural

changes took place in all transition countries regardless of geographical location and income level. The pattern of deagrarization, deindustrialization and shift towards services has been observed.

Table 5-1 Average Growth Rates before and in Post Crisis Periods

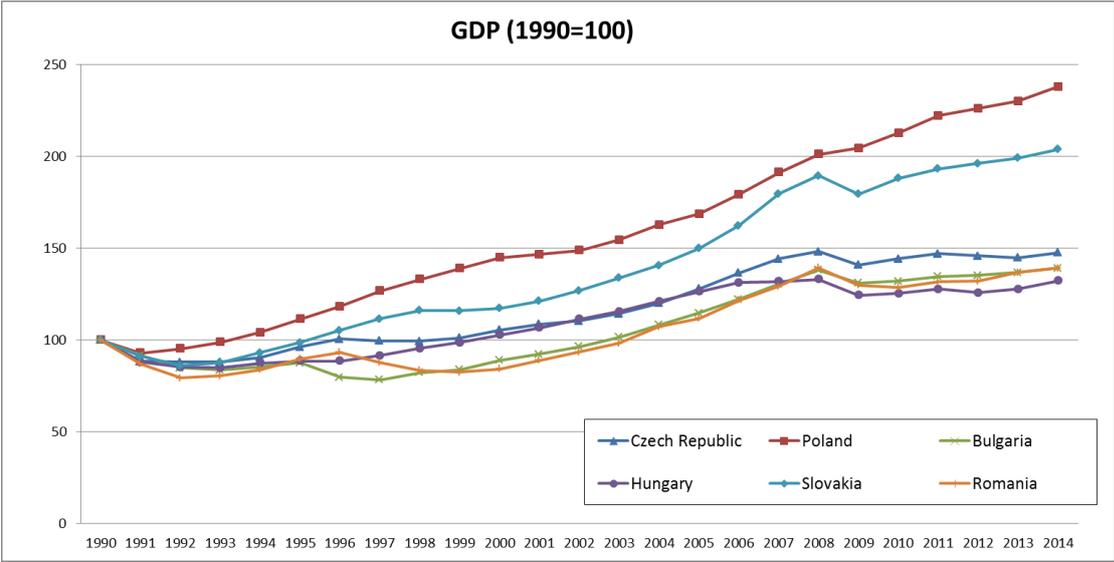
	Year beginning of recovery	Average growth rate since year beginning of recovery - 2008	Average growth rate 2009-2014
Kyrgyz Republic	1996	5.2	3.7
Tajikistan	1997	7.4	6.5
Kazakhstan	1995	5.7	5.2
Russia	1997	5.4	1.0
Ukraine	2000	6.9	-2.0
Poland	1992	4.7	2.8
Czech Republic	1993	3.3	0.0
Bulgaria	1998	5.3	0.1
Hungary	1994	3.1	0.0
Slovakia	1993	5.1	1.3
Romania	2000	6.0	0.0

Source: World Bank

Since the beginning of transition, many post-socialist countries, being in the middle-income group, experienced deindustrialization and a shift of economic activity towards services, which is a feature of development of high-income countries. However, this structural transformation was of the survival type, which is inefficient (Mickiewicz and Zalewska, 2002) and accompanied by stagnation in total employment (Havlik, 2005). At the beginning of transition, the Czech Republic was thought of as a successful example of structural transformation caused by transition reforms, however since the middle of 1990s, according to Flek and Večerník (2004), there were no further changes in the

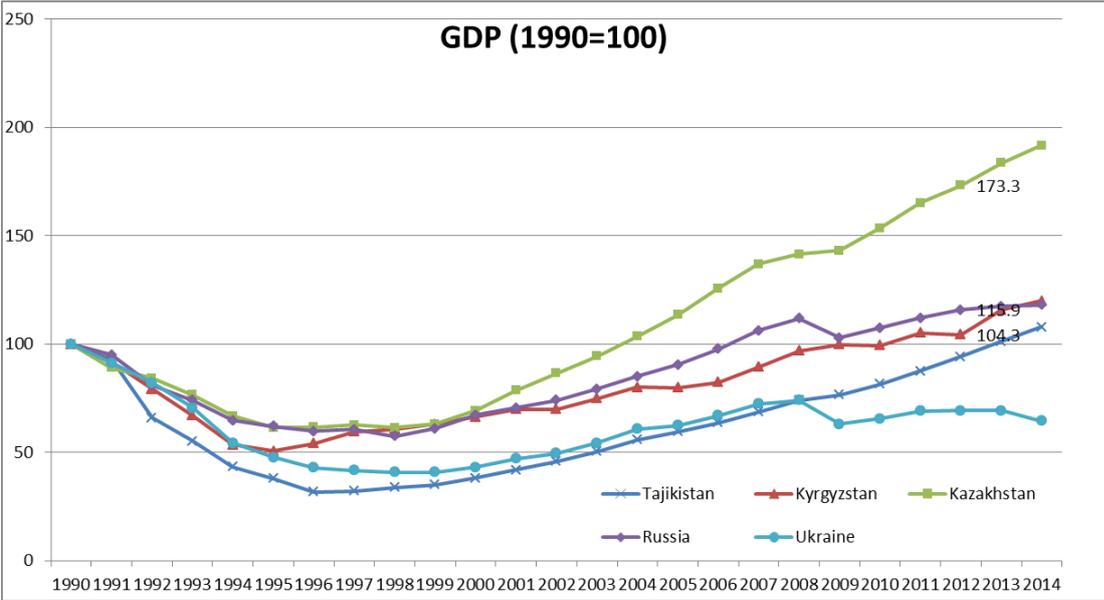
structure of employment. Constant increases in unemployment have had no consequences on the structure of employment.

Figure 5-1 Economic Growth in Selected Transition Economies of the Central and Eastern Europe



Source: World Bank Databank

Figure 5-2 Economic Growth in Selected Transition Economies of the Former Soviet Union



Source: World Bank Databank

Table 5-2 Structural Change in Transition Economies

	Year	Agriculture		Industry		Services		GDP per capita (constant 2005 USD)
		Share in GDP	Share in employment	Share in GDP	Share in employment	Share in GDP	Share in employment	
Albania	1991	39.3	n/a	42.7	n/a	18.0	n/a	1,211.4
	1995	55.8	68.4	22.5	10.2	21.7	21.4	1,549.3
	2000	29.1	71.8	19.0	6.6	51.9	21.5	2,085.6
	2010	20.7	41.5	14.3	20.8	65.0	37.7	3,685.6
Bulgaria	1991	16.9	19.5	43.8	41.1	39.3	39.3	2,643.5
	1995	14.7	23.9	28.4	33.5	56.9	42.6	2,597.3
	2000	12.4	13.1	25.4	32.7	62.3	53.6	2,779.9
	2010	5.1	6.8	27.8	33.3	67.1	59.9	4,559.7
Czech Republic	1991	n/a	n/a	n/a	n/a	n/a	n/a	9,154.1
	1995	4.4	6.6	39.0	41.8	56.7	51.5	9,944.0
	2000	3.4	5.1	37.2	39.5	59.4	55.4	10,938.7
	2010	1.7	3.1	36.8	38	61.5	58.9	14,640.3
Estonia	1991	n/a	19.3	n/a	37.0	n/a	43.7	n/a
	1995	5.8	10.2	32.4	34.2	61.8	55.6	4,995.4
	2000	4.8	7.1	27.8	33.3	67.4	59.6	7,102.3
	2010	3.2	4.2	28.0	30.5	68.8	65.1	10,364.5

Continued

	Year	Agriculture		Industry		Services		GDP per capita (constant 2005 USD)
		Share in GDP	Share in employment	Share in GDP	Share in employment	Share in GDP	Share in employment	
Hungary	1991	n/a	16.1	n/a	36.1	n/a	47.8	7,515.9
	1995	8.4	8	30.5	32.6	61.1	59.4	7,600.8
	2000	5.8	6.5	31.7	33.7	62.5	59.7	8,916.2
	2010	3.6	4.5	30.4	30.7	66.0	64.9	11,108.9
Latvia	1991	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	1995	8.9	n/a	25.9	n/a	65.2	n/a	3,601.1
	2000	5.2	14.5	20.1	26.3	74.7	59.1	4,821.8
	2010	4.5	8.8	19.0	24.0	76.5	67.2	8,058.8
Lithuania	1991	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	1995	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	2000	n/a	18.7	n/a	26.8	n/a	54.5	n/a
	2010	3.3	9	n/a	24.4	n/a	66.2	8,941.4
Poland	1991	n/a	25.4	n/a	36.0	n/a	38.0	4,411.4
	1995	5.3	22.6	37.4	32.0	57.3	45.3	5,235.4
	2000	3.3	18.8	32.8	30.8	63.9	50.4	6,874.1
	2010	3.0	12.8	32.9	30.2	64.1	56.9	10,066.3

Continued

	Year	Agriculture		Industry		Services		GDP per capita (constant 2005 USD)
		Share in GDP	Share in employment	Share in GDP	Share in employment	Share in GDP	Share in employment	
Romania	1991	20.1	29.8	45.1	39.9	34.8	30.3	3,356.5
	1995	21.4	40.3	42.7	31.0	35.8	28.7	3,508.9
	2000	12.1	42.8	33.4	26.2	54.5	31.0	3,326.6
	2010	6.4	30.1	42.1	28.7	51.5	41.2	5,634.9
Slovakia	1991	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	1995	5.6	9.2	36.8	38.9	57.5	51.9	7,685.5
	2000	4.4	6.7	36.1	37.3	59.5	56.1	9,095.7
	2010	2.8	3.2	35.5	37.1	61.7	59.6	14,582.8
Slovenia	1991	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	1995	4.3	10.4	34.7	43.1	61.0	46.4	12,423.3
	2000	3.3	9.5	35.0	37.4	61.7	52.3	15,316.5
	2010	2.0	8.8	30.6	32.5	67.4	58.3	19,327.4
Armenia	1991	25.0	n/a	49.2	n/a	25.8	n/a	1,021.6
	1995	42.3	n/a	32.0	n/a	25.8	n/a	665.7
	2000	25.5	n/a	39.0	n/a	35.5	n/a	895.6
	2010	19.2	38.6	37.0	17.4	43.8	44.0	1,997.1

Continued

	Year	Agriculture		Industry		Services		GDP per capita (constant 2005 USD)
		Share in GDP	Share in employment	Share in GDP	Share in employment	Share in GDP	Share in employment	
Azerbaijan	1991	32.3	31.8	31.4	22.3	36.3	32.2	1,631.7
	1995	27.3	30.8	33.6	17.8	39.1	35.8	650.8
	2000	17.1	41.0	45.3	10.9	37.5	48.1	874.1
	2010	5.9	38.2	64.1	13.7	30.0	48.1	3,126.7
Belarus	1991	21.0	21.1	49.9	n/a	29.1	n/a	2,299.9
	1995	17.5	n/a	37.0	n/a	45.6	n/a	1,519.9
	2000	14.2	n/a	39.2	n/a	46.7	n/a	2,103.1
	2010	10.6	n/a	42.2	n/a	47.2	n/a	4,524.2
Georgia	1991	28.7	n/a	37.1	n/a	34.3	n/a	1,957.9
	1995	52.2	n/a	15.8	n/a	32.1	n/a	716.3
	2000	21.9	52.1	22.4	n/a	55.7	n/a	1,018.7
	2010	8.4	n/a	22.2	n/a	69.4	n/a	1,850.8
Kazakhstan	1991	n/a	n/a	n/a	n/a	n/a	n/a	2,718.2
	1995	12.9	n/a	31.4	n/a	55.7	n/a	1,950.6
	2000	8.7	n/a	40.5	n/a	50.8	n/a	2,343.5
	2010	4.8	28.3	42.9	n/a	52.3	n/a	4,732.7

Continued

	Year	Agriculture		Industry		Services		GDP per capita (constant 2005 USD)
		Share in GDP	Share in employment	Share in GDP	Share in employment	Share in GDP	Share in employment	
Kyrgyz Republic	1991	37.0	35.5	35.5	26.5	27.6	38.0	633.3
	1995	43.9	47.2	19.5	16.7	36.6	36.1	341.1
	2000	36.7	53.1	31.4	10.5	31.9	36.5	417.1
	2010	19.4	n/a	29.2	n/a	51.4	n/a	561.0
Moldova	1991	42.7	41.8	33.3	24.0	23.9	31.3	1,352.0
	1995	33.0	n/a	32.2	n/a	34.8	n/a	650.4
	2000	29.0	50.9	21.7	13.9	49.2	31.0	583.3
Moldova	2010	14.4	27.5	15.9	18.7	69.6	46.2	983.2
Russia	1991	14.3	14.2	47.6	39.8	38.1	45.7	5,386.2
	1995	7.2	15.7	37.0	34.0	55.9	50.0	3,529.5
	2000	6.4	14.5	37.9	28.4	55.6	57.1	3,870.4
	2010	3.9	n/a	34.7	n/a	61.4	n/a	6,365.2
Tajikistan	1991	36.6	n/a	36.9	n/a	26.4	n/a	652.7
	1995	38.4	n/a	39.3	n/a	22.2	n/a	250.2
	2000	27.4	n/a	38.9	n/a	33.7	n/a	234.3
	2010	22.1	n/a	28.2	n/a	49.7	n/a	419.6

Continued

	Year	Agriculture		Industry		Services		GDP per capita (constant 2005 USD)
		Share in GDP	Share in employment	Share in GDP	Share in employment	Share in GDP	Share in employment	
Ukraine	1991	22.8	19.3	50.5	9.1	26.7	15.2	2,413.6
	1995	15.4	22.5	42.7	28.0	41.9	14.0	1,276.9
	2000	17.1	23.4	36.3	20.8	46.6	13.3	1,210.7
	2008	7.9	15.8	33.6	23.4	58.5	60.7	1,974.6
Uzbekistan	1991	37.0	n/a	36.6	n/a	26.5	n/a	532.9
	1995	32.3	41.2	27.8	n/a	39.9	n/a	399.4
	2000	34.4	n/a	23.1	n/a	42.5	n/a	446.0
	2010	19.1	n/a	32.5	n/a	48.4	n/a	755.3
China	1991	24.2	59.7	41.4	21.4	34.5	18.9	501.1
	1995	19.7	52.2	46.7	23.0	33.7	24.8	782.1
	2000	14.7	50.0	45.4	22.5	39.8	27.5	1,127.7
	2010	9.6	36.7	46.2	28.7	44.2	34.6	2,891.1
Vietnam	1991	40.5	n/a	23.8	n/a	35.7	n/a	313.5
	1995	27.2	n/a	28.8	n/a	44.1	n/a	409.8
	2000	22.7	65.3	34.2	n/a	43.1	n/a	531.9
	2010	18.9	n/a	38.2	n/a	42.9	n/a	900.5

Source: World Bank Databank

5.3 Lessons from Experience of Centrally Planned System

One of the important sources of growth in socialist economies was the process of state-guided industrialization which involved accumulation of capital and reallocation of resources from traditional agriculture to more productive mining and manufacturing. This process was accompanied by high growth rates, which slowed down in later years.

The inability to sustain growth rates and chronic stagnation were the fundamental problems of the centrally planned economies. Western economists believed that the socialist system was inefficient solely due to the problem of the incentives effect of ownership of enterprises on technical efficiency. Murrell (1991) provides comparison of technical efficiency estimates of market economies and centrally planned economies, finding that technical efficiency was not a particular problem of socialist economies. Therefore, the incentives effect of ownership on technical efficiency alone cannot explain the poor performance of socialist economies. When considering allocative efficiency, distinction should be made between static and dynamic allocative efficiency. Whitesell demonstrates that the Soviet economic system shows “a surprisingly high degree of static allocative efficiency” (Whitesell, 1990, p. 266). However, he argues that such performance “results from poor dynamic economic performance” (Whitesell, 1990, p. 266). A similar conclusion is made by Brown and Earle (2002). The price paid for efficient static resource allocation was a slow pace of technological change. Indeed, centrally planned economies were dynamically stagnant, mostly because of stagnation in technological innovation. The slow pace of technological change resulted in a slow pace of resource reallocation, resulting in slow structural change. Poznanski (1985) confirms that the allocative mechanism of the central planning had a strong effect on the

slow pace of technological change in socialist countries compared with advanced market economies.

Centrally planned economies were fundamentally different from market economies in two aspects. One is the sources of innovation. Enterprises were not sources of innovation, but merely production units. The absence of competitive environment as a selection process and the absence of trial and error experimenting through the market led to limited product variety and resulted in a slow pace of product evolution. Another aspect is the high degree of inflexibility of the mechanism of central planning. Centralized economic systems were unable to adjust to technological innovation by changing its structure in a timely manner; structural inertia was a distinctive feature of the system. Economic stagnation was not only structural and technological, but also extended to institutional and social aspects. In socialist economies there was a very “curious concept of change” as “a single, one-off event, which then needed no further attention” (Schöpflin, 1994, p. 192). For the communist mentality, change was perceived not “as a constant and steady process”, but it was regarded “as something sudden and radical, then followed by periods of inactivity” (ibid, p. 192).

It is rather interesting to examine if transition reforms could significantly address these problems of centrally planned economies. Despite good pre-crisis growth performance, the ability of post-socialist economies to innovate has been questioned. Högselius (2003) notes that Eastern European countries have a severe lack of ability not only to produce existing goods and services, but also to generate new and improved advanced products. Kravtsova and Radosevic (2012) find that growth in Eastern Europe is driven by production, not

innovation capabilities. According to Innovation Union Scoreboard 2013 and 2014 (European Commission, 2013b, 2014) Eastern European countries belong to the group of moderate and modest innovators. In the process of convergence in innovation performance among EU members, less innovative countries are no longer catching-up with the most innovative which may indicate a divergence in innovation performance. Narula and Jormanainen (2008) report that formal policies developed during transition period of Russian system of innovation have failed to create incentives for undertaking innovation activities and the modernization of the industrial sector. Thus, it was unable to overcome structural inertia. After 25 years of transition reforms, entrepreneurial activity across transition economies still remains low. Estrin and Mickiewicz (2010) argue that this may be associated with the slow adaptation of informal institutions, including attitudes and social norms, as legacies of the socialist past.

These few facts demonstrate that inherited long-run fundamental problems of the centrally planned economies have not been properly addressed by transition reforms, and what is most important is that lessons from the experience of the planned economy have not been learnt.

5.4 Policy Implications

Policies play a central role in the topic of structural change. However, these policies go beyond issue of macroeconomic policies. Structural transformation requires policies which facilitate emergence and development of whole new economic sectors. Particularly, manufacturing played the role of the engine in transforming economic structure, accelerated economic growth and increased labor productivity. Industrialization, which for a long time was synonymous

with modernization and development through structural transformation, was a process designed and induced by the state. Since the Industrial Revolution, governments of many countries have been practicing public policies aimed at the transformation of their economies from low-productivity agriculture to high-productivity manufacturing. Nevertheless, the degree of success from implementing industrial policies varies broadly, which stimulates further debate on the role of industrial policy in market economies.

The conventional objective for industrial policy is to create, promote and protect sectors and activities, which are not limited only to industry. The rationale for this is that the market mechanism fails to provide adequate incentives and coordination mechanisms to guide investment decisions, labor and human capital which are needed for structural transformation. This may be when the market does not exist or incomplete.

The view against industrial policies is usually that government has neither the necessary information nor adequate incentives to make better choices than the market. The role of government is not to promote individual industries by “picking-winners” but to provide infrastructure and human capital. With the neoclassical view dominating economic policies, mentioning industrial policy has long been an anathema in policy debates.

The process of deindustrialization across developed and transition economies accelerated with the advent of globalization has brought the issue of industrial policy back to prominence in debates, and has caused a fundamental shift in the general view on what governments should do when designing and implementing industrial policy.

However, formulating industrial policy in modern times based on the

experience of the first is misguided at best. Chapter 4 demonstrated that understanding what factors ignite economic growth and what factors sustain it are somewhat different problems. At different levels of development, different sources of growth play different roles. Particularly, sustaining growth requires creating capabilities and mechanisms which sustain change. Factors that drive sustained structural change require the creation of capabilities to generate new activities.

Initial transition policies were not focused on economic growth. It was believed that liberalization and privatization were sufficient to enable transition economies to converge with western standards of living. The soundness of standard transition policies in addressing economic growth in transition economies has been questioned after crisis of 2008-2009. Particularly, the importance of economic structure and structural change and reconsidering the role of the state has been brought to debate on transition and policy alternatives.

One such approach is New Structural Economics (NSE) proposed by Lin (2012). NSE has implications for transition economies as well. Its main idea is the importance of economic structure and structural change that requires attention to industrial upgrading. What is “new” in the suggested policy framework of NSE is that it advances a neoclassical approach in understanding the sources and dynamics of change in economic structure. It emphasizes the role of the structure of factor endowments in structural change. In NSE, the economic structure of an economy is determined by the endogenous structure of factor endowments of a country. Economic development can be sustained by sustaining evolution of the structure of factor endowments and continuous

technological innovation.

According to NSE, important condition for sustaining evolution of the structure of factor endowments is properly functioning market mechanism, which drives optimal allocation of resources at any stage of economic development. At the same time NSE acknowledges the importance of government interventions in facilitating take-off and catch-up processes, not by protecting selected industries or firms, but by addressing issues of externality, coordination and information of the market mechanism (Lin, 2012).

The argument of the NSE is that the failure of the old structural economics and development strategies which promoted forced industrialization was largely due to following strategies that defy comparative advantage. It suggests that successful development strategies should follow comparative advantage, not defy it.

NSE provides interesting insights on development and structural change. However, can it be an alternative for transition economies? Suggesting policies for transition economies is not the same as for developing countries, because transition economies have already passed stages of industrialization, and the share of contribution of industrial sector to employment and GDP was compared to the level of developed economies.

The objective of the preceding analyses in Chapter 4 was to demonstrate that policies facilitating sustained economic growth should be grounded on the premise of impossibility of achieving sustained economic growth without continuous structural change and contributory qualitative changes. Our motivation to develop a broad framework was to highlight the complexity of the mechanism of sustained economic growth and thus avoid simple-minded policy

prescriptions. Such a framework provides enough room for pragmatism in policy implications and allows suggesting specific policy measures.

Our framework should not be simplified to “growth through innovation” or “growth through entrepreneurship”, because there is a tendency to narrow the scope of these concepts. Innovation and entrepreneurship should be viewed in context of a broader category of change. The degree of innovation and entrepreneurial activity reflects more of a general attitude to change in a given society. Innovation takes place in a socio-cultural context. We see that it is rather inappropriate to recommend for countries, where social or cultural norms are hostile to novelty and change, to invest heavily in R&D.

Regarding transition reforms in the context of change, we suggest that reforms of former socialist economies should be viewed as a transition to a change-oriented culture. First, the process of transition can be viewed as a process of creating capabilities to endogenously generate incremental continuous change.

The role of the state is to focus on policies which initiate, facilitate and sustain change. In our framework there is no separation between state and private, which allows a state to be an initiative entrepreneur. This includes the active role of the state in creating and shaping competitive market mechanisms with a focus on the unique role of entrepreneurs as generators of change. McMillan and Woodruff (2002) emphasized importance of the coordinating role of entrepreneurs in transition economies which have flawed structures and a lower level of organization. Particularly, our framework highlighted the importance of competition and entrepreneurship as generators of change. Therefore, creating a competitive environment conducive to innovative

entrepreneurship and entrepreneurial behavior of existing large firms should be a policy option.

Change is a very complex socio-economic phenomenon. It is important to recognize interdependence and coevolution of society, institutions and technology. Perception of change is rooted in the values of a society, which is reflected in the persistence of informal institutions. Therefore, policy may facilitate and direct evolution of informal institutions towards a change-oriented, innovative, creative culture, which would allow accumulation of innovative capabilities. Entrepreneurial abilities are not innate in anyone, in any culture; entrepreneurship itself is an element of individualistic cultures. Therefore, policies may aim at creating entrepreneurial capacity through promoting entrepreneurial leadership.

We did not address policies which may facilitate structural change directly, such as industrial policy (technological policy), for the reason that industrial policy efforts under weak innovative capabilities may not be sustainable in the long run, although some state leadership might be necessary to initiate a shift from activities with low potential to change (innovation and imitation) to activities capable to generate significant change. Of course, this should be considered in the context of institutional and social capabilities and their degree of flexibility. Removing structural rigidities would complement facilitating policy efforts. Some sectors, particularly resources sectors (agriculture or resources extraction activities) have inherently lower potential to change. If the majority of economic activity takes place in such sectors, an economy may be locked in structural stagnation.

We can better define the destination of transition if we know more about

functioning of advanced market economies. A market economy is a complex mechanism, which cannot be reduced to a private property and price system. In order to achieve continuity of change, it is therefore required to make change a routine and beneficial objectives of transition policies would be to enable mechanisms which generate constant, persistent change. Table 5-3 presents a comparison of traditional transitional and suggested post-transitional reforms in the context of change.

Table 5-3 Comparison of Transitional and Post-Transitional Reforms

	Transitional reforms	Post-Transitional reforms
Final destination of transition	Free market economy	Changing economy (technologically, institutionally, structurally, socially)
Goal	Improving technical (productive) efficiency	Improve dynamic allocative efficiency
Key subject of the study	Enterprises of manufacturing sector	Economic system as a whole
Policies	Liberalization and stabilization	Active structural transformation
Dominating approaches	Supply-side neoclassical economics	Market process, demand-side approach, evolutionary, economics, institutional economics
Market	Private ownership, self-equilibrating price mechanism	Origin of value, mechanism of dynamic allocation.
Incentives	Private ownership	Market competition
Indicator of transition	Degree of liberalization	Indicators of structural change, innovation

5.5 Conclusions

This chapter provided a review of the long-term problems of transition economies and suggested policies addressing the sustainability of their economic growth. Despite 25 years of transition reforms, most transition economies still face problems of sustainability of economic growth. This suggests that not all problems inherited from socialism have been solved; these problems have not been addressed by transition reforms. These problems were exposed by global economic crisis of 2008-2009, and demonstrated the need to reconsider transition reforms.

Based on the framework from Chapter 4, we provided policy framework reasons for thinking on the role of continuous qualitative change as an important mechanism of sustained economic growth and structural change. Creating a competitive environment conducive to innovative entrepreneurship could be a policy option.

Chapter 6 Conclusions and Topics for Further Research

The main motivation for this research was to understand the poor economic performance during the transition period and to suggest policies aimed at achieving sustained economic growth in the Kyrgyz Republic and other transition economies.

The structural change approach brought a better understanding of the mechanisms of economic growth and development via a process of continuous structural change. Structural change is essential for achieving sustained economic growth. It works through reallocation of factors to their most productive use. This corresponds to the shift from primary to secondary and then to tertiary activities. Structural change is caused by many factors, such as technological and institutional change. At the same time, there are many factors which can hinder this process, such as market imperfections.

The effect of reallocation of labor on productivity as one aspect of structural change in the case of the Kyrgyz Republic was studied empirically. The effect of deindustrialization and shift to service activities is ambiguous: while deindustrialization contributed negatively to productivity growth, the shift to services does not positively correlate with an improvement in productivity. This suggests that the shift to services does not follow the pattern of development followed by developed economies.

Looking at economic growth as a process of structural change brings a broad range of possibilities for policy implications. They are of particular importance for transition countries, where the market mechanism is expected to play a

greater role in facilitating structural change. Therefore, policies which facilitate structural change in transition economies can be focused on solving problems inherited from the central planning period.

Recognizing the important relation between economic growth and structural change opens new directions for further research. Some of these include the role of technological change, product innovation, economic diversification, competition, institutions, export sophistication and globalization.

The main contribution of this dissertation is constructing a framework of sustained economic growth. This framework brings together different views on economic growth. It allowed us to draw a complete and consistent picture of economic growth. It allowed us to understand the role of entrepreneurship and competition in consideration of the transition to a market economy and allows us to address the sustainability of growth.

It provides a completely new vision of economic growth as a process of qualitative transformation, rather than as a process of mechanistic increase in aggregate output. This concept can be seen as the first step to formally explain qualitative changes, to understand change as purposeful human action that can uniquely be created by humans. The roles of qualitative changes and of institutions in economic growth have become clear.

Relations between growth and structural change provide numerous topics for future research. One such topic is a study of the phenomenon of entrepreneurship in economic growth and the role of entrepreneurs as agents of change. Another is the role of institutions in economic growth. Particularly, it is interesting to understand the role of demographic, political and environmental changes in directing structural change and economic growth.

At the same time, structural change may lose its relevance in understanding mechanisms of economic growth if it fails to recognize that structural change results in creating the complex, interdependent structure of the economy, where relationships between sectors are not independent and homogenous, but rather symbiotic relationships. Activities in services and manufacturing depend on the capabilities of each other. Knowledge and communication, which are outputs of the service sector, are becoming important factors of production for industry, and services are highly dependent on output from other sectors (manufacturing, construction, agriculture). This suggests potential research on better understanding on the role of sectors in structural change, which would eventually create a need to revise the current static three-sector classification of economic activities.

This research critically examined many fundamentals of economics. Economic growth theory from a narrow field focused on increase in output turned into a fascinating study of the process of economic change. When one starts thinking about economic growth as the result of human-made change, one will never again be able to think about it as simple mechanistic process of quantitative increase in gross output.

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