

The concept of structural change economics essay



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Introduction

This chapter presents theoretical background guiding this research. The chapter starts by explaining the concept of structural change in relation to economic development, followed by the fundamental theories used in this study to explain the traditional path from agrarian based economy to advanced modern economy. Furthermore the chapter reviews the role of agriculture in development process. There is still controversy on which sector whether agriculture or industry provides vital role in development particularly in agrarian based economy. Therefore it finally draws a conclusion that agriculture act as the main engine of growth in the early process of development or in agrarian based economy rather than in modern economy.

The concept of Structural change

The phrase “ economic structural change” is frequently used in the economic development arena and it has currently received more attention due to the diverse growth patterns in the world economies (Grabowski, 2013; URT, 2012; Tehle 2012; McMillan and Rodrik, 2011; Fagerberg, 2000). The term has been defined in various ways by different researchers and economists. Similarly, it is agreed that there is no single theory in the field of economic development that fully illustrates the transformation process as each theory taken in consideration results in a different aspects (Tehle 2012). In that line, the challenging fact is that the economist’s dreams is to have only one theory of growth that lift an economy from primitive to modern stage (Lewis, 1984b cited in Breisinger and Diao, 2008). However, in the process of achieving sustained growth it is found that” economists are increasingly

promoting a country-specific approach for the identification of growth opportunities and constraints to prosperity” (Rodrik, 2003 as quoted in Breisinger and Diao, 2008: 3). This results from different social and political environments found across countries (Boakye 2012).

From the above views, there a need to be explicit about exactly what is meant by the word structural change. According to Matsuyama’s definition, structural change means changes in various aspects of the economy such as “ the sector compositions of output and employment, organization of the industry, financial system, income and wealth distribution, demography, political institutions, and even the society’s value system” (Matsuyama, 2008 quoted in Tehle 2012: 4). Moreover, Breisinger and Diao, (2008: 3) defined structural change as “ alteration in the relative importance of economic sectors.” following a tradition path that starts with agriculture, industry and then services. Hence, this study adopt Breisinger and Diao’s definition by looking on the contribution share of agriculture, industry and service sectors to the gross domestic product and employment share in these three sectors. While other aspects of structural change observed in matsuyama’s definition are not covered in this dissertation.

The absence of a general theory in explaining structural change in the economy, causes scholars in this field of economic development to summarise the concept using three features as observed in various empirical studies as follows: The most valued and frequently observed feature is the rise in share of the modern sectors in the total GDP which is associated with fall in the agriculture’s share (Chenery 1968; Kuznets 1966; Chenery 1960 quoted in Breisinger et al. 2009). Secondly, the percentage of the total labor

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force working in the agricultural sector decline while that in modern sectors increases (Ibid). The third and last one, is the labour force migration to urban area from rural area this signify that the center of the national's economy shifts from rural areas to towns and hence the degree of urbanization significantly increases (Kuznets 1966, Stern et al. 2005 quoted in Breisinger et al. 2009). However, the concept of structural change has recently been expanded by McMillan and Rodrik, (2011) trying to explain the structural change by observing the growth productivity of labor within the sector and across the sectors.

Structural Change Theories

Referring to the aspects of structural change given above, it is obvious that the structure of the economy can shift in various ways and therefore it is essential to understand the diverse patterns of structural changes. The direction of the patterns of structural transformation built on the structural change theories that focus on the mechanism by which low development economies transform their domestic economic structures from a heavy emphasis traditional subsistence agriculture to a modern, more industrially diverse manufacturing and finally on the services economy Among others are the three old examples of the structural changes approach of “ two sector surplus labour” presented by Lewis (1954), Rostows theory of economic stage's of development (1960)[1]and the pattern of development analysed by Chenery and his colleagues (1960)[2]. Further different ideas of achieving the sustained economic growth (transforming the economy) come in existence from many development economists during the period of 1960s to 1970s. This period characterized as the period of economic development

around the world (Todaro and Smith, 2011). However, investigator decided to use Lewis dual sector model as the guiding theory of this study.

In relation to the dual sector economy articulated by Sir Arthur Lewis in 1954, the theory becomes the fundamental in explaining the structural change of the economy, it takes into consideration only the traditional sector (Agriculture in the rural areas) and modern sector (only industry/manufacturing in the urban areas) in the economy. The former be considered as a provider of surplus labor and the latter regarded as driving force for economic transformation to happen. The primary focus of the model is on both the process of labor transfer and the growth of output and employment in the modern sectors (Tehle 2012; Todaro and Smith, 2011; McMillan and Rodrik, 2011). The model considers that at the early stage of development labour forces in rural area are abundant and the Marginal productivity of labor in this sector is negligible. Likewise it assumes that all labor force in traditional sector share equally in the output so that the real wages is determined by the average and not the marginal product of labor (Lewis 1954: p140, Lewis 1979 quoted in McMillan and Rodrik, 2011; Tehle 2012; Todaro and Smith, 2011).

The negligible marginal productivity of labor implies that removing the surplus labour to other sector in the economy (modern sector) will not decrease the output as a result the productivity in the traditional sector will increase and the additional labor from the rural areas will promote the modern sector and stimulate industrialization up to the point the two sector “converge to a mono economy with equalization in the economy-wide marginal productivity of labor and full employment” (ibid : 4). Based on this, <https://assignbuster.com/the-concept-of-structural-change-economics-essay/>

Nevertheless, the Lewis model has not escaped criticism from different angle of scholars in development economics as it failed to note that “ investment in labor saving technology, capital flight, upward pressure on wages from trade unions, seasonality of surplus labor” can change the availability and productivity labor in traditional sector (Tehle 2012: 6). Among development economist scholar was Schultz (1964) who criticizes the negligible (zero) marginal productivity of labor in traditional sector, he found that when India country became affected by influenza pandemic in 1918-1919, almost 8 percent of rural labor force died causes the number of labor force in rural areas to decrease, as the result, the output in traditional sector goes down (ibid). Despite its weakness in explaining the structural change in this high technology world, Lewis model remain the fundamental and continues to be a key starting point to explain the process of economic transformation. As Todaro and Smith (2011) for instance, observed the model is widely relevant to recent experience in China, where labor all most to 40 percent has been steadily absorbed from farming to manufacturing from 1978 up to 2000 also the trend has been marked in a few other countries with similar growth patterns.

The role of agriculture in the process of economic development

Throughout the stages of development, agriculture provides a key role for development. Its effect is big in less developed countries where large numbers of working labor force are employed and its share to national income is high. It is evident that in developing countries the sector accounts for more than 25 percent of national income and employs more than 60

percent of the total labor force (Dethier and Effenberger, 2012). It becomes less important in developed countries as both its aggregate income and employment decline. In line with this view, agriculture sector in middle income countries contributes around 9 percent and in high income countries it accounts for about 1 percent of gross domestic product (ibid). The marginal role of agriculture in middle and high income nations lies in the fact that, all countries have succeeded to shift a large portion of their resources, for instance Labor away from agriculture to industry and then to service sector. In Japan, for example there is a considerable fall in the share of man power in the agricultural sector from 39 percent in 1955 to 7 percent in 1990 and a subsequent steady rise of the labor force in modern sectors (Chang, 2009). This view on the role of agriculture to growth corresponds to Kuznets' (1966) empirical analysis as the importance of the modern sectors increases while agriculture shrinks with economic development.

Based on the role of agriculture in development, it has been voiced in the literature; however there is controversy, that agriculture at the early stages of development acts as the powerhouse for accelerating development. The argument is on which sector between agriculture and industry/manufacturing acts as an engine of growth in the course of development (Christiaensen, et al. 2011).

Kuznets (1966); Johnston and Mellor, (1961); Schultz, (1964) quoted in Christiaensen et al., (2011); Timmer, (1995); Todaro and Smith, (2011); Meier and Rauch, (2005) however found that agriculture made four contributions to economic development: firstly the production contribution of inputs for industry such as textiles and food processing. Secondly through <https://assignbuster.com/the-concept-of-structural-change-economics-essay/>

the foreign exchange contribution of using agricultural exports revenues to import capital equipments, thirdly the market contribution of using rural incomes creating more demand for consumer products and finally the factor market contribution, divided between the labor contribution(Lewis's manpower)- workers not needed on farms after agricultural productivity raised could then work in industry and the capital contribution in which some farm profits could be reinvested in industry as agriculture become a steadily smaller fraction of national income.

Following the ongoing debate on which sector leads the growth at the early stage of development, there is amount of literature ranging from theories and contributions that do not supports agriculture. Tehle (2012); McMillan and Rodrik, (2011); Todaro and Smith, (2011); Bezemer and Headey, (2008) assert that building in economic theory Lewis famous two sector model as illustrated earlier, regards agriculture to provide only a passive and supportive role in economic growth through fueling sufficient low price food and manpower to the expanding industrial sector which was thought to be the dynamic " leading sectors" in any overall strategy of economic development. Based on this theory Dercon, (2009) reviewing the work of Eswaran and Kotwal (1994) find that agriculture in low income nations is less productive sector than other modern sectors in the economy. He further concluded that in this period of market liberalization importing agricultural products and put more efforts on other modern sectors could lift more a nation's development. Despite of the existence of high contribution of agriculture in terms of employment and income to the national income in most of developing nations in Africa Gollin (2010) reveals that this is not

necessarily that the overall growth has to be derived from agricultural demand-led industrialization strategy.

Furthermore in supporting the modern sector (Industry strategies) Szirmai, (2012) summarizes the theoretical and empirical arguments obtained from secondary literature as follows: (a) There is a practical relationship among the scale of industrialization and income per capita in less developed nations (b) Output per unit labor is considered to be higher in the non agriculture sectors than in the traditional agricultural sector (c) In the process of production , it is found that the ' economies of scale' is large in industry sector, compared to other sectors of the economy. (d) In the interaction among sectors in the economy, it found that, the ' Linkage and spillover effects' are more powerful in industry sector compared to the rest of the economy. (e) Capital accumulation which is vital in accelerating growth is more evident in industry sector than in agriculture sector. (f) As the national income increases, it is evident that a nation that focuses on industrial products will benefit much more than a country that concentrate in primary products. This is in accordance to Engel's law which specifies that, increase in income causes expenditure of agricultural products in overall expenditure to shrink and the demand of the industrial products increases (Grabowski, 2013; Christiaensen, et al. 2011; Szirmai, 2012; Diao, et al. 2006).

A similar situation is also recognized in empirical study, Szirmai, (2012) analysed data from 67 developing countries of Asia and Latin America and 21 high income countries for the period of 1950 - 2005 and obtained similar results that manufacturing is the engine of growth in developing countries.

At the same time, the service sector was found significant in developed

nations which contribute above 70 percent of gross domestic product. This findings confirm to what (Rodrik, 2003) observed in Asian countries that industry strategies contributed more to development and neither traditional agriculture nor services have contributed. However, it is widely agreed that many economies of Sub Saharan Africa countries depends much on agriculture and the truth cannot be refuted.

On the other hand, there is a considerable amount of literature ranging from economic theory, economic history and even through empirical analysis that support the theme of ‘ agriculture led growth’ in early stage of development. Based on economic theory as provided in the dual economy model, Bezemer and Headey, (2008) pointed out that agriculture is a labor intensive and capital extensive that helps to employ more labor force and provides cheap foods to both rural and urban dwellers and provides raw material to non agriculture sectors. It further helps to increase the foreign currencies in the economy which then are used to purchase equipment for the manufacturing sector. In explaining the dynamics of the development process Yang and Zhu (2004) cited in Diao, et al. (2006) used growth theory to capture the movement of development and maintain that in absence of growth in agriculture in terms of productivity, an agrarian economy cannot be able to supply its abundant resources; hence sustained economic growth cannot be achieved. This suggests that even if the modern sectors expand rapidly, sluggish growth in agricultural at the onset of development inhibit the structural change mainly from agriculture to non agriculture economy. On the same wave Block, (1995) suggests that when productions in traditional agriculture remain dormant, the increased labor force in modern sector may

results in food shortage and reduces the growth of the modern sector. This implies that, the increase in food price subsequently raise the cost of living which hurt more the low income earners that spend a large proportion of their income on food (particularly staple food). From high cost of living will course labor force to demand high wages and consequently will impede the growth of modern sectors in early phase of development.

Turning to history of economics, a quite number of authors including Allen, (1994); Bairoch, (1973); Crafts, (1985); Lipton, (1977); Ohkawa & Rosovsky, (1964); Overton, (1996); Rostow, (1960) cited in Bezemer and Headey, (2008) supported the concept that, green revolution as an element of agricultural productivity occurs first in the course of development before industrial revolution take place. Based on this idea, Chen, et al. (2011); Christiaensen, et al. (2011) reported that, experience observed in Asia countries, for example, China and India both attained green revolution first, though at different period ranging from 1970 -1980 but started to realize the industrialization later in their economies in early 2000s. Korea another Asian country achieved the green revolution in rice during 1950s earlier than the industrial revolution in the 1960s (Chang, 2009). Furthermore, experience of western developed countries such as Germany, United States, Canada and United Kingdom to mention a few, shows that there were considerable episodes of escalating labour productivity in traditional agriculture which come first before the expansion in the non agriculture sectors (Adelman and Morris, 1988 quoted in Bezemer and Headey, 2008).

In parallel with economic theory and economic history is the empirical studies conducted either across countries or in a specific country to justify <https://assignbuster.com/the-concept-of-structural-change-economics-essay/>

further that agriculture is an engine of growth in the course of economic development. The econometric results in Gollin et al. (2002) , based on both panel and cross section data of 62 developing countries for the period from 1960 - 1990 revealed that agriculture led growth in the early stage of development. In regards to this study, growth in agricultural productivity found quantitatively significant in explaining growth in gross domestic product per labour. It accounts for about 54 percent of gross domestic product growth. In additional, they further found that all countries which raised agriculture productivity were able to shift resources from agriculture into non agriculture sectors. This sectoral reallocation found to contribute 29 percent of GDP growth while the modern sectors found to contribute only 17 percent.

In further examining the role of agriculture in the course of development, the impressive body of empirical study conducted in 27 nations by Vogel, (1994) confirms that agriculture drives growth at early development stages. He analysed the agricultural linkages across different phases of development by looking the strength of relationship among agriculture and other sectors in the economy. He concluded that, backwards linkages (which occur mostly through raised demand of agriculture for inputs that are manufactured in non agriculture sectors) are strong at the early stage of development. In a similar vein, World Bank (2007); Diao et al. (2007) suggest that, consumption linkages (backward Linkages) are strong in less developing countries, have much more growth multiplier and considerable poverty reduction effects. On the other hand forward linkage in both studies reveals weak linkage. In testing the direction and causality between agriculture and modern sectors

Taffin and Irz (2006) quoted in Breisinger and Diao, (2008) maintain that, agricultural growth influences more other sectors in the economy and there is a weak linkage from industry to agriculture in developing nations. From these competing ideologies observed above however, the framework implicitly and ironically still supports an industrialization strategy rather than rural modernization as the core development goal. The agricultural sector in particular and the rural economy in general plays an indispensable part in any overall strategy of economic progress especially for the low income developing countries.

Following the linkage observed between agriculture and non agriculture sectors in early stages of development makes agriculture growth a crucial instrument for fighting poverty and inequality. This takes place either through directly employment and profitability or through jobs in other sectors of the economy as agricultural productivity increases (Irz et al., 2001). This is built in the premise that, Increases in agricultural output release man power to other sectors, whereas wages based on the idea of Ranis and Fei (1961) cited in Breisinger and Diao, (2008) is high in modern sectors compared to agriculture sector, it also decreases food prices, and consequently raises the purchasing power of households. Research conducted by Loayza and Raddatz (2010: 148) in developing countries reveals that labor intensive sectors like agriculture tend to have stronger effects on reducing poverty compared to less labor intensive sectors such as industry and services sectors. Furthermore analyses across three sectors reveals that, 1percent increase in agricultural growth decreases poverty by

1. 6 more than in industry sector and 3 times more than in service sector (Christiaensen and Demery 2007).

Conclusion

Although the dual sector model received criticisms in explaining the development process from primitives to modern ones, the model remain the fundamental in the field of economic development to explain the economic transformation. It regards the traditional agriculture sector as the supportive and abundant sector which is necessary in the economy by supplying abundant labour and raw material to the leading manufacturing sector. In attempting to investigate the role of agriculture in the process of development, the above evidences reveal contrasting function of agriculture in development. Some give more attention to manufacturing/industry as the engine of growth while others remain in agriculture. Basing on this, Dethier and Effenberger, (2012) observed this controversy emanating from diverse economic assumptions as countries worldwide differ from one to another in terms of economic environment. For this case, they insist that the driver of the economy should be re-examining after some periods. This is in line with the 2008 World Development Report (World Bank, 2007), which re-assessed the function of agriculture in the economy and suggested that in low income countries, the traditional agriculture is the main engine of growth, providing employment to about Percent and contribute to percent to national income. Whereas developed nations/ high income countries, agriculture plays marginal roles in the economy as employ percent and contribute minimal to about percent in GDP in this case the manufacturing/ industry remain the engine of growth.