Avrasya Sosyal ve Ekonomi Araştırmaları Dergisi (ASEAD)
Eurasian Journal of Social and Economic Research (EJSER)
ISSN:2148-9963 **www.asead.com**

STRUCTURAL CHANGE IN SELECTED AFRICAN COUNTRIES

Dr. Maya MOALLA[1]

ABSTRACT

Structural change is defined as the shift of resources from primary sectors to those boasting high value-added. If productivity elevates owing to structural change, then economic growth becomes more vigorous and steadier. This study's goal is to examine structural change and the sources of labor productivity evolution in selected African countries from 1990 to 2018. Therefore, the Shift-Share Analysis method was employed in the study. The results indicated that the transition of competent labor to industries with higher productivity coupled with investments in fundamentals that promote physical and human capital, innovative practices, and infrastructure, are vital for increasing productivity. For policymakers, both internal productivity improvements and structural transformation need to coexist harmoniously.

Keywords: Growth, Structural Changes, Productivity, African Countries, Shift-Share Analysis.

Jel classification: J21, R11, O40

SEÇİLMİŞ AFRİKA ÜLKELERİNDE YAPISAL DEĞİŞİM

Dr. Maya MOALLA

ÖZET

Yapısal değişim, kaynakların birincil sektörlerden yüksek katma değerli sektörlere kayması olarak tanımlanmaktadır. Yapısal değişime bağlı olarak verimlilik artarsa, ekonomik büyüme daha güçlü ve daha dengeli hale gelir. Bu çalışmanın amacı, 1990-2018 yılları arasında seçilmiş Afrika ülkelerinde yapısal değişim ve verimlilik artışının kaynaklarını incelemektir. Bu nedenle, çalışmada Shift-Share Analiz yöntemi kullanılmıştır. Elde edilen bulgulara göre nitelikli işgücünün daha yüksek verimliliğe sahip endüstrilere geçişinin yanı sıra, fiziksel ve beşerî sermaye, yenilikçi uygulamalar ve altyapıyı teşvik eden temel yatırımlar gibi faktörler, verimliliği artırmak için hayati öneme sahiptir. Bu sonuçlara göre, politika yapıcısı için hem iç verimlilikteki iyileşmeler hem de yapısal dönüşümün uyum içinde bulunması gerekmektedir.

Anahtar Kelimeler: Büyüme, Yapısal Değişim, Verimlilik, Afrika Ülkeleri, Shift-Share Analizi

[1] Independent Researcher, ORCID ID: 0000-0003-4076-2790, mayamoalla@hotmail.com
Araştırma Makalesi/Research Article, Geliş Tarihi/Received: 12/09/2023–Kabul Tarihi/Accepted: 05/10/2023

INTRODUCTION

The structural change process is defined as the change in the economic sectors' size over time. In developing economies, the development process should coincide with the structural change process. Any economic structure is bound to change over time. For instance, in high-income countries, whereas the service sector's share in GDP increased from (66%) in 1997 to (70%) in 2021, the shares of agriculture/industry in GDP decreased from (2%/27%) in 1997 to (1.3%/22%) in 2021. In low-income countries, the agricultural sector's share decreased from (31%) in 1997 to (26%) in 2021 versus an increase in industry's share of GDP from (24.85%) in 1997 to (25.50%) in 2021 and a decrease in the service sector's share in GDP from (41%) in 1997 to (35%) in 2021. In the middle-income countries, the agricultural sector's share decreased from (12%) in 1997 to (9%) in 2021, but the industry's share in GDP increased from (33%) in 1997 to (34%) in 2021. The service sector's share in GDP also increased from (49%) in 1980 to (53%) in 2018 (WDI, 2023). The patterns of structural change are inherently influenced by both demand and supply conditions. From the supply-side perspective, the primary factors influencing structural transformation are alterations in labor-boosting technological developments, factor distributions, and elasticity of substitution across industries (Herrendorf, et al., 2013). From the demand-side perspective, the primary factors influencing structural transformation are final demand, intermediate demand, and trade. Whether viewed from the supply or demand perspective, structural change is inevitably central to economic growth and development.

One of the most intriguing aspects of structural change is the change in employment or the labor transition. In the rich countries, employment in the agricultural sector decreased from (6%) in 1997 to (3%) in 2021; during the same period, the service sector's employment share increased from (65%) to (74.7%), but employment in the industry decreased from (28%) to (22%). In the low- income countries, whereas employment in agriculture decreased from (70%) in 1997 to (59%) in 2021, employment shares in the total labor force increased from (21%) to (30%) in the service sector and from (28%) to (22%) in the industry in the same period. In the middle-income countries, a decline in employment share from (47%) in 1997 to (29%) in 2021 in agriculture versus an upsurge in employment share in service (from 33% to 46%) and industry (from 20% to 25%) in the same period. As labor shifts from sectors of lesser value-added to those of higher ones, total productivity improves, spurring economic expansion (Chenery, Robinson & Syrquin, 1986). McMillan and Rodrik (2011) underscore that the overall performance of an economy hinges on how resources are distributed among sectors. Yet, the direction of structural change plays a crucial role in an economy's progress.

The impacts of changes in economic sectors on growth are tied to productivity variations. As such, productivity associated with industry transitions stands at the forefront of current economic development narratives (Doğruel & Doğruel, 2018). Hence, the evident influence of the structural change indicates that resources are being reallocated appropriately (Kaymaz, 2022; Rodrik, 2010; Nas, Moalla & Tuncer, 2023). Labor productivity heterogeneities among industries act as a crucial catalyst for the transformation in the economic structure.

In developing nations, there are consistent disparities in productivity across firms even those in the same industry. The productivity enhancements that arise from within a particular industry are referred to as the within-growth effect, while those gains stemming from the transfer of labor or other resources between sectors are known as the structural change effect. The overall labor productivity growth is derived from the amalgamation of the within-growth and structural change impacts. A plethora of research employs shift-share analysis to decompose total labor productivity enhancement into the within-sector effect and the structural change one. Additionally, by employing shift-share analysis, structural change was dissected into two distinct effects: the static shift and the dynamic shift effects. While the static shift denoted the segment of accumulated labor productivity evolution descending from employment shares' changes in sectors with diverse productivity levels, the dynamic denoted the segment of accumulated labor productivity evolution descending from the interaction between employment shares' changes and productivity gains. Some studies accentuate the pivotal role of the within-sector effect in catalyzing labor productivity advancements, whereas others underscore the importance of structural shifts in explaining growth differences between countries. This investigation seeks to probe into the dynamics of the structural change process and the patterns of labor productivity augmentation in select African nations between 1990-2018. This work is made up of four sections. The first section includes the introductory part in which the general features of the structural change process are summarized. In the second section literature review is structured. The third section includes data, methodology, and findings. The fourth section is about evaluating the results and conclusion.

LITERATURE REVIEW

The roots of structuralism can be traced back to the endeavors of classical economists. Smith (1776) believed that the division of labor, which entails dissecting intricate tasks into more specific ones, is vital to improving productivity, enhancing worker skills, and fostering innovation in the economic structure. Ricardo (1817) underscored that as non-renewable resources deplete or become more expensive, producers will transition to using renewable or replaceable resources, leading to modifications in the economic structure. Marx (1885) posited that as the economy expands and capital accumulates, changes in the production and distribution of goods are essential for ensuring consistent economic stability and advancement. Rostow (1960) articulated that for an economy to transition from one developmental phase to the next, a prerequisite or a "take-off" process is necessary. Specific sectors play a pivotal role in this process, stimulating investments and enabling self-sustained growth. Gerschenkron (1962) argued that achieving economic development isn't bound to a single path. Lewis (1954) contended that economic development would lead to surplus labor in traditional sectors relocated to modern sectors. This transition would carry on until traditional sectors are emptied of labor. The "big push" and sectoral differences drive this process. Rosenstein-Rodan (1943, 1961) and Nurkse (1953) asserted the necessity of keeping a balance between economic sectors and the strategic planning of investment and output for enduring economic expansion.

Hirschman (1958) proposed that investing in key sectors can trigger a multiplier effect, propelling growth and fostering development across the comprehensive economy. Hoffman (1931, 1958) contended that with economic development, the proportion between consumer goods and capital goods undergoes a transformation, culminating in a stage where both industries contribute nearly equally to the total output. Kuznets (1961, 1971) underscored the deep impact of technological advancement on economic growth. He believed that structural changes arise from variations in income elasticities of demand, leading to the movement of labor across different industries, population redistribution, and urbanization. Such changes have the potential to ignite growth by revealing new demands and fostering increased innovation. Lucas (1993) and Krugman (1994) underscored the significance of investing in both physical and human capital, alongside technological advancement, to promote sustained economic growth. Such a progression is marked by a transition from labor-intensive to more capital-intensive production.

Acemoglu and Guerrieri (2006) argue that as capital accumulates, it modifies the relative expenses of labor and capital. This alteration drives the economy's structural transformation towards a production method that leans more heavily on capital. This phenomenon, often labeled "capitalization" of the economy, is considered a key influencer for economic growth and advancement. Ngai and Pissarides (2007) propose that when households gain utility from a consumption mix reflecting a consistent weighted mean of diverse products, the Kaldor facts can still hold true. This happens even when different goods experience distinct productivity growth velocities. Berthelemy and Soderling (2001) found that a limited scope of structural diversity in Africa resulted in macroeconomic instability and inefficiencies, stymying the initial surge of regional growth. They further observed that while capital accumulation stood as the primary source of Africa's extended evolution in the 1960s and 1970s, gains in TFP became the central growth propellant in the 1980s and 1990s due to a low investment rate. López (2003, 2007) posits that numerous middle-low-income economies have undergone a structural change, leading to heightened environmental deterioration and lackluster measures to combat poverty. López suggests that a decrease in productivity within traditional agriculture may spur labor shift out of this domain, lowering its opportunity cost. This might trigger a "perverse structural change", causing the workforce to move away from its peak productive sector, heightening both environmental harm and poverty. These transformations usually lead to a move to sectors marked by stagnant or declining salaries and less favorable economic prospects. The degradation of natural resources and the isolation of the rural destitute are the two main catalysts for these negative structural changes. Fundamental reasons for these problems encompass the migration from rural areas, environmental repercussions, and population growth. Foellmi & Zweimüller (2008) claim that the primary catalyst for structural transformation is shifts in consumer demand. In contexts of low income, households channel a higher percentage of their financial resources on fundamental needs, especially food, translating to a larger labor demand in agriculture. However, as prosperity increases, expenditure on essentials contracts in comparison to non-essentials, prompting a heightened appetite for industrial goods and subsequent growth in manufacturing employment.

As societies continue to advance and consumer preferences evolve, an enlargement of the service sector occurs, further reshaping the economic structure. This notion aligns with Engel's law, which stipulates that as per capita income rises, there's a discernible drop in the proportion of income spent on food and a reduction in agricultural employment. Ju, Lin & Wang (2009) posit that with the accumulation of capital in an economy, there's a natural transition of the industrial structure towards more capital-intensive sectors. They assert that for an economy to grow consistently, it's crucial that a nation's industrial composition aligns with its capital endowment stature. This denotes that a country abundant in capital should predominantly invest in and develop capital-intensive industries. In contrast, a country with limited capital should commit to enhancing sectors that are predominantly labor-intensive. McMillan and Rodrik (2011) posit that the influence of structural change on growth depends on a country's export profile, particularly how reliant it is on natural resources for its export activities. Missio, Jayme Jr, and Oreiro (2015) posit that a narrow range of structural change constrains prolonged economic growth, limiting the production matrix to a lively central component, like primary exports, with minimal associated manufacturing and service sectors. They underscore that transcending this structural heterogeneity involves a medley of components: physical and human capital resources, structural transformation, macroeconomic policy tweaks, and ceaseless advancements in technology. In unison, these factors stimulate sustained economic growth and development by ensuring a varied mix of economic endeavors and a diversified production structure. Sposi (2015) underscores the systematic differences in the input-output structures of advanced versus developing economies. Such disparities have mien on the reallocation of resources between rich and poor economies. Święcki (2017) demonstrates that the key factor propelling structural change is differential productivity growth, taking precedence over international trade and other contributing factors. Kehoe et al. (2018) revealed that the reduction in employment within the U.S. goods-producing sector was majorly a result of increased manufacturing efficiency, rather than trade deficits. Cravino and Sotelo (2019) underscore that trade-induced structural shifts in manufacturing result in a rise in the skill premium, especially in developing nations. McMillan et al. (2014) observed that in Africa, structural change had a detrimental effect on total productivity growth between 1990 and 2000, yet this trend shifted post-2000, with structural change exerting a positive mien on productivity growth. These post-2000 observations stand in contrast to the conclusions drawn in the original version of McMillan and Rodrik's paper in 2011. de Vries et al. (2015) indicate that even with the rapid changes in Africa's economic structure, the mien on overall growth differs from historical patterns. The transition to service-oriented sectors hasn't delivered the expected productivity gains, falling short of international metrics. A new technology gap in both industrial and service sectors has surfaced, amplifying the challenges of sustaining continuous economic growth across Africa. Diao et al. (2017) stressed the significance of recognizing the multifaceted forces behind structural change in Africa and cautioned against simplistic views that center only on industrialization as the singular route to progress and prosperity. Haile (2018) unveiled that growth in both Burkina Faso and Benin was fueled by static structural change, however, this advancement in Benin was somewhat counterbalanced by dynamic losses.

In contrast, structural change had a muted impact on evolution in Côte d'Ivoire. Additionally, unlike in Asia where displaced agricultural laborers shift to higher-productivity manufacturing sectors, most displaced agricultural workers in Benin, Burkina Faso, and Côte d'Ivoire gravitated towards the less productive service sectors. The general evaluation of the prevailing literature reveals mixed findings regarding the nexus between structural change and aggregate labor productivity evolution, which raises the need for new evidence.

DATA AND METHODOLOGY

Two variables from the Groningen Growth and Development Centre University of Groningen namely, the real value-added and the employment level at the two-digit sectoral level (including agriculture, mining, manufacturing, utilities, construction, trade services, transport services, business services, financial services, real estate, government services, and other services) had been utilized. The Shift-Share Analysis structural decomposition method was utilized in this study to analyze the sources of the productivity evolution in the selected African economies namely, Egypt, Ghana, Lesotho, Mauritius, Morocco, Mozambique, South Africa, Tanzania, and Tunisia during the entire period of (1990-2018) and the sub-periods of (1990-1999), (2000-2009) and (2010-2018). This analysis enables the scrutiny of the influence of within-sector factors and structural transformation impacts on productivity advancement. The shift-share analysis segmented labor productivity development into three facets: within-sector influence, static-shift influence, and dynamic-shift influence. The sum of the static-shift effect and the dynamic-shift effects denotes the structural change effect. This means that there are two major components responsible for the aggregate labor productivity growth which are the structural change effect and within growth effect. While the structural change effect captures productivity growth across sectors, the within-sector effect captures it within the sectors themselves. The investigation in this study was rooted in the studies by Fagerberg (2000), Timmer and Szirmai (2000), and McMillan and Rodrik (2011). With this respect, labor productivity is formulated as depicted in Equation 1 (Bilenko, 2022):

$$LP^t = \frac{VA^t}{L^t} \quad (1)$$

Where, LP^t stands for labor productivity, VA^t stands for real value added, L^t stands for employment, and the subscript t stands for time. Upon utilizing Equation (1) for all the sub-sectors, the aggregate labor productivity in the economy is revealed as Equation (2) (Bilenko, 2022; Harchaoui & Üngör, 2016):

$$LP^t = \frac{VA^t}{L^t} = \sum_{i=1}^{n} \frac{VA_i^t . L_i^t}{L_i^t . L^t} = \sum_{i=1}^{n} LP_i^t . S_i^t \quad (2)$$

Where, i stands for sub-sectors, LP_i^t stands for labor productivity of sector i in period t, S_i^t stands for the share of the labor force of sector i in the total employment in period t. Equation (2) showcases the cumulative labor productivity for the sectors, considering the labor productivity of

each sub-sector by its employment fraction (Tuncer & Altıok, 2011). By taking the first difference of Equation (2) and scaling each side by LP^b, equation (3) is derived. In Equations (3), b and f stand for the base and final years, respectively (de Vries, Timmer & de Vries, 2015):

$$\frac{LP^f - LB^b}{L^b} = \sum_{i=1}^{n} \frac{\left(LP_i^f - LP_i^b\right).S_i^b}{LP^b} + \sum_{i=1}^{n} \frac{\left(S_i^f - S_i^b\right).LP_i^b}{LP^b} + \sum_{i=1}^{n} \frac{\left(S_i^f - S_i^b\right).(LP_i^f - LP_i^b)}{LP^b} \quad (3)$$

(I) (II) (III)

The left side of Equation (3) presents the aggregate labor productivity evolution. The initial term to the right of Equation (3) stands for the within-sector impact (I), the second term stands for the static-shift impact (II), and the third term stands for the dynamic-shift impact (III). The within-sector effect was derived by maintaining the employment share of the sector constant to discern the segment of the sector's labor productivity originating internally. It's imperative in the analysis to draw a line between static-shift and dynamic-shift impacts to delve into both the repercussions of labor moving to high-productivity sectors in the base year and the influence of transitioning to sectors with accelerated growth trends (Tuncer & Moalla, 2020). The static-shift effect (II) denotes the mien of alterations in labor distribution among sectors on the growth of productivity. The static-shift effect will lean positive if sectors with accelerating productivity growth expand their portion of overall employment. In this scenario, the structural transformation will propel the total productivity surge in the economy. On the flip side, if the portion of total employment in high-productivity sectors diminishes, the static-shift mien will lean towards the negative realm. Differently, the dynamic shift effect (III) quantifies variations in both productivity and the allocation of labor throughout various sectors. That is to say, the dynamic shift effect examines the common repercussions of alterations in employment alongside productivity metrics. The dynamic-shift effect will trend positively when the fraction of high-productivity sectors in total employment increases more rapidly than low-productivity sectors. This implies that the economic resources have migrated from sectors with subdued productivity to those with higher productivity (de Vries, Timmer & de Vrise, 2015).

EMPIRICAL IMPLEMENTATION

Table (2) shows the brief summary of the annual average growth rates of real value added, labor productivity and employment for the selected African countries. The data indicated varying patterns of economic growth and labor dynamics across the analyzed African countries, with some countries like Mozambique and Tanzania showcasing notable improvements in labor productivity over time. In contrast, countries like South Africa indicate challenges in maintaining labor productivity growth consistently.

Table 1: Annual Average Growth Rates of Basic Indicators (%)

Country	Year	Real Value added	Employment	Labor productivity
Egypt	1990-1999	3.8	3	0.8
	2000-2009	5.1	3.1	2
	2010-2018	3.2	1.7	1.5
Ghana	1990-1999	4.2	1.3	2.9
	2000-2009	5.8	3.5	2.3
	2010-2018	6.5	3.4	3
Lesotho	1990-1999	4.9	-0.1	5.1
	2000-2009	5.3	2.9	2.4
	2010-2018	3.6	1.6	2.2
Mauritius	1990-1999	5.1	1.6	3.5
	2000-2009	4.3	1	3.3
	2010-2018	3.7	1.6	2
Morocco	1990-1999	2.6	2.2	0.3
	2000-2009	5.6	1.3	4.3
	2010-2018	4.3	0.7	3.6
Mozambique	1990-1999	5.5	3.2	2.2
	2000-2009	8.1	2.5	5.5
	2010-2018	5.8	2.6	3.1
South Africa	1990-1999	1.1	1.8	-0.6
	2000-2009	3.2	0.8	2.6
	2010-2018	1.9	1.7	0.2
Tanzania	1990-1999	4.4	1.6	2.7
	2000-2009	6.3	4.4	1.9
	2010-2018	6.6	1.9	4.6
Tunisia	1990-1999	4.2	2.5	1.7
	2000-2009	4.7	2	2.7
	2010-2018	3.2	1.5	1.7

Source: Author's calculation based on the data obtained from the Groningen Growth and Development Centre University of Groningen.

Table (2) depicts the results of decomposing labor productivity in 9 African countries during the entire period from 1990 to 2018 and the sub-periods: 1990-1999, 2000-2009, and 2010-2018. In Egypt, during the period spanning 1990-1999, the labor productivity growth was positive equivalent to roughly 0.07. The negative dynamic effect was offset by the static growth effect and both the within-growth effect and the structural change one positively contributed to the aggregate Egyptian productivity growth during this period. During the period from 2000 to 2009, positive labor productivity growth recorded (0.19), fundamentally stemmed from the within growth effect, with a negative mien of structural change on the overall labor productivity.

During the period spanning 2010-2018, the within growth was responsible for the majority of the positive labor productivity growth during this period. The same result was recorded for the entire period spanning 1990-2018. These results align with those revealed by Ayed Mouelhi & Ghazali (2020). In Ghana, during the period from 1990 to 1999, the positive labor productivity growth was attributed to the within-growth effect, with a negative mien of the structural change on the overall labor productivity growth. Similarly, the within-growth effect was responsible for the majority of the positive aggregate labor productivity growth in the rest sub-periods. During the entire period, the positive static effect offsets the negative dynamic one, and the within growth effect was responsible for the majority of the aggregate labor productivity growth, with a small positive contribution recorded for structural change effect (as the sum of static and dynamic effects). In Lesotho, except for the period spanning 2010-2018, the positive aggregate labor productivity growth was attributed to both within growth and structural change effect, with the majority recorded for the within growth effect during the periods of 1990-1999 and 1990-2018. Adverse structural change effect was recorded during the period from 2010 to 2018, however the majority of the labor productivity growth was recorded for it during the period of 2000-2009. In Mauritius, positive labor productivity growth was recorded for all the studied period. Both the within growth and the structural change effects were positive, with the majority of labor productivity growth recorded for the within growth effect.

Table 2: Growth Patterns in Selected African Countries

Country	Year	within growth	static growth	dynamic growth	Labor productivity growth (%)
Egypt	1990-1999	0.031	0.075	-0.040	0.067
	%	46.556	112.599	-59.155	100
	2000-2009	0.273	-0.021	-0.059	0.193
	%	141.769	-11.131	-30.638	100
	2010-2018	0.121	0.079	-0.060	0.140
	%	86.459	56.123	-42.583	100.000
	1990-2018	0.813	0.422	-0.601	0.634
	%	128.219	66.493	-94.713	100
Ghana	1990-1999	0.297	0.037	-0.041	0.294
	%	101.099	12.683	-13.782	100
	2000-2009	0.228	0.076	-0.079	0.224
	%	101.679	33.646	-35.325	100
	2010-2018	0.391	0.246	-0.348	0.290
	%	135.004	84.979	-119.983	100
	1990-2018	0.979	0.373	-0.220	1.131
	%	86.509	32.972	-19.482	100
Lesotho	1990-1999	0.396	0.199	-0.035	0.560
	%	70.784	35.481	-6.265	100
	2000-2009	0.059	0.351	-0.178	0.232
	%	25.591	151.182	-76.773	100
	2010-2018	0.184	0.101	-0.123	0.162
	%	113.504	62.255	-75.759	100
	1990-2018	1.360	1.110	-1.065	1.405
	%	96.775	78.993	-75.768	100
Mauritius	1990-1999	0.267	0.111	-0.017	0.360
	%	73.976	30.692	-4.668	100

	2000-2009	0.237	0.151	-0.047	0.341
	%	69.483	44.389	-13.872	100
	2010-2018	0.136	0.043	-0.002	0.177
	%	76.959	23.979	-0.938	100
	1990-2018	1.069	0.450	-0.129	1.390
	%	76.891	32.406	-9.297	100
Morocco	1990-1999	0.002	0.009	-0.004	0.007
	%	28.552	123.637	-52.190	100
	2000-2009	0.367	0.112	-0.030	0.450
	%	81.680	24.920	-6.601	100
	2010-2018	0.214	0.138	-0.021	0.331
	%	64.592	41.705	-6.297	100
	1990-2018	0.888	0.284	-0.132	1.040
	%	85.325	27.325	-12.650	100
Mozambique	1990-1999	0.095	0.113	-0.004	0.205
	%	46.573	55.290	-1.862	100
	2000-2009	0.615	0.047	-0.054	0.609
	%	101.066	7.776	-8.842	100
	2010-2018	0.243	0.163	-0.149	0.256
	%	94.688	63.483	-58.171	100
	1990-2018	1.109	0.494	-0.035	1.568
	%	70.734	31.507	-2.241	100
South Africa[2]	1990-1999	0.012	0.055	-0.124	-0.057
	%	-20.501	-95.159	215.660	100
	2000-2009	0.247	0.025	-0.020	0.252
	%	98.068	9.769	-7.837	100
	2010-2018	-0.025	0.009	-0.018	-0.034
	%	73.768	-27.103	53.336	100
	1990-2018	0.341	0.166	-0.279	0.227
	%	149.748	73.130	-122.878	100
Tanzania	1990-1999	0.248	0.116	-0.089	0.275
	%	90.078	42.106	-32.184	100
	2000-2009	0.007	0.332	-0.154	0.185
	%	3.800	179.211	-83.012	100
	2010-2018	0.322	0.087	0.032	0.441
	%	73.034	19.801	7.164	100
	1990-2018	0.702	0.727	-0.076	1.354
	%	51.886	53.712	-5.598	100
Tunisia	1990-1999	0.159	-0.001	-0.003	0.155
	%	102.279	-0.481	-1.799	100
	2000-2009	0.271	0.001	-0.008	0.264
	%	102.710	0.264	-2.973	100
	2010-2018	0.133	0.040	-0.036	0.137
	%	97.398	29.096	-26.494	100
	1990-2018	0.724	0.028	0.002	0.754
	%	96.028	3.738	0.234	100

Source: Author's calculation based on the data obtained from the Groningen Growth and Development Centre University of Groningen.

[2] The negative percentages during the periods (1990-1999) and (2010-2018) stem from division by a negative aggregate labor productivity growth.

Similar results were revealed in Morocco and Tanzania. The negative dynamic effect was offset by the positive static one. It indicated that sectors didn't increase (decrease) their employment shares concurrently with increasing (decreasing) their labor productivity levels during the studied intervals. In Mozambique, adverse structural change was recorded during the period from 2000-2009, with a major contribution of the within growth effect to the aggregate labor productivity evolution, excluding the 1990-1999 period where the structural change contributed to roughly 53% of the total productivity evolution. In South Africa, negative labor productivity growth was recorded during the periods of 1990-1999 and 2010-2018, stemming from the negative dynamic effect during the first period, and stemming from the negative within growth and the negative structural change effect during the second period. During the period spanning 2000-2009, positive labor productivity growth was recorded, stemming fundamentally from the within growth effect, with a positive static shift effect offsetting the negative within growth one. During 1990-2018, an adverse structural change impact was recorded, stemming from the negative dynamic shift, indicating that the sectors failed to increase their labor productivity in concomitant with increasing their employment shares. In Tunisia, positive labor productivity growth was recorded during all the studied periods, stemming fundamentally from the within growth effect. Adverse structural change effects were recorded during two sub-periods 1990-1999 and 2000-2009.

CONCLUSION AND POLICY RECOMMENDATIONS

This study utilized the conventional shift-share analysis to decompose aggregate labor productivity evolution into two components: the first one is the within-growth mien and the second component is the mien of the structural change for selected African countries, namely, Egypt, Ghana, Lesotho, Mauritius, Morocco, Mozambique, South Africa, Tanzania, and Tunisia during the entire period of 1990-2018 and the sub-periods of 1990-1999, 2000-2009, and 2010-2018. Labor productivity growth in countries like Egypt, Ghana, and Mauritius was primarily driven by the within-growth effect during the entire period spanning 1990-2018. South Africa experienced negative labor productivity growth in certain periods spanning 1990-1999 and 2010-2018. Meanwhile, countries like Tunisia, Morocco, and Tanzania saw consistent positive productivity growth. The results indicated that the transition of competent labor to industries with higher productivity coupled with investments in fundamentals that promote physical and human capital, innovative practices, and infrastructure, are vital for increasing productivity. Hence, for development to occur, enhancements in internal productivity and structural changes need to coexist harmoniously.

REFERENCES

Acemoglu, D., & Guerrieri, V. (2006). Capital Deepening and Non-Balanced Economic Growth. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.924498

Ayed Mouelhi, R. B., & Ghazali, M. (2020). Structural transformation in Egypt, Morocco and Tunisia: Patterns, drivers and constraints. Economics of Transition and Institutional Change, 29(1), 35–61. https://doi.org/10.1111/ecot.12258

Berthelemy, J.-c., & Soderling, L. (2001). The Role of Capital Accumulation, Adjustment and Structural Change for Economic Take-Off: Empirical Evidence from African Growth Episodes. World Development, 29(2), 323–343. https://doi.org/10.1016/s0305-750x(00)00095-4

Bilenko, Y. (2022). Labor productivity in the agriculture, structural shifts and economic growth in the Central and Eastern European countries. Agricultural and Resource Economics: International Scientific E-Journal, 8(4), 5–32. https://doi.org/10.51599/are.2022.08.04.01

Chenery, H., Robinson, S., Syrquin, M., (1986), Industrialization and Growth, Oxford University Press.

Cravino, J., & Sotelo, S. (2019). Trade-Induced Structural Change and the Skill Premium. American Economic Journal: Macroeconomics, 11(3), 289–326. https://doi.org/10.1257/mac.20170434

de Vries, G., Timmer, M., & de Vries, K. (2015). Structural Transformation in Africa: Static Gains, Dynamic Losses. The Journal of Development Studies, 51(6), 674–688. https://doi.org/10.1080/00220388.2014.997222

Diao, X., McMillan, M., & Rodrik, D. (2017). The Recent Growth Boom in Developing Economies: A Structural Change Perspective. National Bureau of Economic Research. https://doi.org/10.3386/w23132

Doğruel, A. S., & Doğruel, F. (2018). Türkiye'de yapısal ve teknolojik değişme. In N. Engin, E. Aslanoğlu, O.Erdoğam, B. C. Karahasan and K. Tata (Ed.). Türkiye Ekonomisinde Kalkınma ve Dönüşüm: Taner Berksoy'a Armağan (pp. 267-286). Ankara: İmge Kitabevi.

Fagerberg, J. (2000). Technological progress, structural change and productivity growth: a comparative study. Structural Change and Economic Dynamics, 11(4), 393–411. https://doi.org/10.1016/s0954-349x(00)00025-4

Foellmi, R., & Zweimüller, J. (2008). Structural change, Engel's consumption cycles and Kaldor's facts of economic growth. Journal of Monetary Economics, 55(7), 1317–1328. https://doi.org/10.1016/j.jmoneco.2008.09.001

Gerschenkron A (1962). Economic Backwardness in Historical Perspective. Cambridge. Massachussets: The Belknap Press of Harward University

Haile, F. (2018a). Structural Change in West Africa: A Tale of Gain and Loss. World Bank, Washington, DC. https://doi.org/10.1596/1813-9450-8336

Harchaoui, T. M., & Üngör, M. (2015). Sectoral sources of sub-Saharan Africa's convergence. Applied Economics Letters, 23(9), 642–651. https://doi.org/10.1080/13504851.2015.1095994

Herrendorf, B., R. Rogerson, and A. Valentinyi (2013). "Growth and Structural Transformation". NBER Working Paper.

Hirschman, A.O. (1958). The strategy of economic development. New Haven, CT: Yale University Press.

Hoffmann, W. ([1931]/1958), 'The Pattern of Industrial Growth', in Hagemann, H. Landesmann, M., Scazzieri, R., The Economics of Structural Change, Volume III, Critical Writings, Aldershot: Edward Elgar.

Ju, J., Lin, J. Y., & Wang, Y. (2009). Endowment Structures, Industrial Dynamics, and Economic Growth. The World Bank. https://doi.org/10.1596/1813-9450-5055

Kaymaz, V. (2022). Sektörel ayrışma ve emek verimliliği. Trends in business and economics, 36(1), 93-101. doi:10.54614/TBE.2022.951336

Kehoe, T. J., Ruhl, K. J., & Steinberg, J. B. (2018). Global Imbalances and Structural Change in the United States. Journal of Political Economy, 126(2), 761–796. https://doi.org/10.1086/696279

Krugman, P. (1994). The Myth of Asia's Miracle. Foreign Affairs, 73(6), 62. https://doi.org/10.2307/20046929

Kuznets, S. (1961). Quantitative Aspects of the Economic Growth of Nations: VI. Long-Term Trends in Capital Formation Proportions. Economic Development and Cultural Change, 9(4, Part 2), 1-124. doi: 10.1086/449936.

Kuznets, S. (1971). Economic Growth of Nations: Total Output and Production Structure. Harvard University Press, Cambridge, MA.

Lewis, W. (1954). Economic Development with Unlimited Supplies of Labour. The Manchester School, 22(2), 139-191. doi: 10.1111/j.1467-9957. 1954.tb00021.x

Lopez, R. (2003). The Policy Roots of Socioeconomic Stagnation and Environmental Implosion: Latin America 1950–2000. World Development, 31(2), 259–280. https://doi.org/10.1016/s0305-750x(02)00187-0

López, R.E., 2007. Structural change, poverty and natural resource degradation. In: Atkinson, G., Dietz, S., Neumayer, E. (Eds.), Handbook of Sustainable Development. Edwards Elgar, Cheltenham, UK/Northampton, MA, USA.

Lucas, R. E. (1993). Making a Miracle. Econometrica, 61(2), 251. https://doi.org/10.2307/2951551

Marx, K. (1885). III: Schematic presentation of accumulation and supplementary remarks. In: Hagemann, H., Landesmann, M., Scazzieri, R. (Eds.), The Economics of Structural Change, Vol. I, Critical Writings. 2003, Edward Elgar, Aldershot.

McMillan, M., Rodrik, D. (2011). Globalization, structural change and productivity growth. In M. Bacchetta, & M. Jense (Eds.), Making globalization socially sustainable (pp. 49–84). Geneva: International Labour Organization and World Trade Organization.

McMillan, M., Rodrik, D., & Verduzco-Gallo, Í. (2014). Globalization, Structural Change, and Productivity Growth, with an Update on Africa. World Development, 63, 11–32. https://doi.org/10.1016/j.worlddev.2013.10.012

Missio, F., Jayme JR, F, G., and Oreiro, J. L. (2015). The structuralist tradition in economics: methodological and macroeconomics aspects. Rev. Econ. Polit., 35(2). http://dx.doi.org/10.1590/0101-31572015v35n02a03

Nas, Ş., Maya, M., & Tuncer, İ. (2023). Structural Change and Growth Prospects in The Turkish Economy: A Demand-Side Decomposition Analysis. E+M Ekonomie a Management, 26(1), 25–44. https://doi.org/10.15240/tul/001/2023-1-002

Ngai, R., Pissarides, C., 2007. Structural change in a multi-sector model of growth. American Economic Review 97, 429–443.

Nurkse, R. (1953). Problems of capital formation in underdeveloped countries. Oxford: Oxford University Press.

Ricardo, D. (1817). On rent. In: Hagemann, H., Landesmann, M., Scazzieri, R. (Eds.), The Economics of Structural Change, Vol. I, Critical Writings. 2003, Edward Elgar, Aldershot.

Rodrik, D. (2010). Structural transformation and economic development. Ankara: TEPAV Economic Policy Research Foundation of Turkey. www.tepav.org.tr/en

Rosenstein-Rodan, P. (1943). Problems of Industrialisation of Eastern and South-Eastern Europe. The Economic Journal, 53(210/211), p.202.

Rosenstein-Rodan, P. (1961). Notes on the theory of the big-push. In: Ellis, H.S., Wallich, H.C. (Eds.), Economic Development for Latin America. Macmillan, London.

Rostow, W.W. (1960). The Stages of Economic Growth: A Non-communist Manifesto. Cambridge University Press, Cambridge.

Sposi, M. J. (2015). Evolving Comparative Advantage, Sectoral Linkages, and Structural Change. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2643957

Smith, A. (1776). In: Campbell, R.H., Skinner, A.S., Todd, W.B. (Eds.), An Inquiry into the Nature and Causes of the Wealth of Nations. Oxford, Clarendon Press, 1976.

Święcki, T. (2017). Determinants of structural change. Review of Economic Dynamics, 24, 95–131. https://doi.org/10.1016/j.red.2017.01.007

Timmer, Marcel P. and Szirmai, A. (2000). Productivity growth in Asian manufacturing: the structural bonus hypothesis examined. Structural Change and Economic Dynamics, 11, 371–392.

Tuncer, İ., and Altiok, M. (2011). Türkiye imalat sanayinde yapısal değişim ve "retkenlik: 1980 - 2008 dönemi. Anadolu Üniversitesi Sosyal Bilimler Dergisi.

Tuncer, İ. & Moalla, M., (2020). Structural Change and Growth Prospects in the Turkish Manufacturing Industry. Bulletin of Economic Theory and Analysis, 5(1), pp.1-20.