POLICY BRIEF

Structural Change, Productivity, and Jobs Creation: Evidence from Tunisia

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The context

Today over 22 percent of Tunisian population is between the age of 15 and 29, and fully 47 percent of the population is under 30. This significant youth bulge could have been a good opportunity for Tunisia to benefit from an abundant labor supply following the entry of young workers into the labor market. This means that consumption and additional tax revenue would increase leading to an adequate and stable funding of social programs and public investments. However, this economic dynamic neither worked nor have produced the expected results in terms of economic growth and employment. In fact, Tunisian economy is still a low-

income, slow-growth one with limited fiscal resources, high unemployment rates, high levels of informality, low coverage of social-protection programs and social exclusion of youth. Although the exclusion of young people is a multidimensional phenomenon in Tunisia, its economic dimension, which consists of difficulties in accessing the labor market, is probably the most serious issue. Indeed, unemployment and poor-quality jobs are two central issues in public debates and are among the priorities of Tunisian government. This situation was especially pronounced in the two decades from 1990 to 2010, following the Stabilization and Structural Adjustment Program, and accentuated in the last decade after the 2011 revolution.

Higher education graduates, particularly women, are more affected by unemployment. In 2011, the unemployment rate among higher education graduates was 33.6%. This rate gradually declined but remained high in 2019 at 28%, with a 1.6% increase in the gap between men and women. Growth prospects remain disappointing, labor market shows lackluster performance, with low female participation rate and high and persistent informality. Women's participation in the labor market remains low, not exceeding 27%. The country's political life is marked by multiple crises: thirteen governments have succeeded since 2011. Growth in 2011 fell dramatically to -1.9%, and did not exceed 2.5% from 2011 to 2019 (except for 2012, where it reached 3.9%), a far cry from the required level to address structurally high levels of unemployment. Successive terrorist attacks and killings and the disruption in Tunisia’s phosphate production, which accounts for nearly 15% of the GDP, weakened the governance and have been subject to the downward price correction and growth from 2015 to 2017. The Covid-19 pandemic contributed to worsen the already weak socioeconomic situation. Probably the most telling result of the harmful effect of the crisis is the decline in Real GDP growth rate to -9.2% in 2020.

Research problem

Although Tunisia has developed its higher education to move up the value chain, its economy has not been able to grow beyond low-skilled and low-wage activities. As a result, the newly unemployed have been mainly young and well-educated people, reflecting a structural mismatch between labor market demand for unskilled workers and an increasing supply of skilled labor. The employed population is mainly involved in activities with low added value (such as trade, transport and telecommunications, construction, textiles, and clothing), therefore requiring primary and/or secondary education profiles as a priority. The democratic transition after the 2011 revolutionary thrust has been accompanied by a severe economic recession which accounts for the difficulties experienced by Tunisia today, albeit partly.

In the light of these serious challenges the country has to overcome, it needs a combination of several tools to ensure increased productivity and employment

growth. Particularly, the identification of most productive and profitable sectors and sustainable job-creating firms should ensure investment reorientation towards the productive sectors and thus improve creating jobs and reducing unemployment. This policy brief focuses on implementation of sectors and firms that constitute the real opportunities for productive employment and social integration, using data from the Tunisian Business Register (RNE) over the last two decades.

Key findings

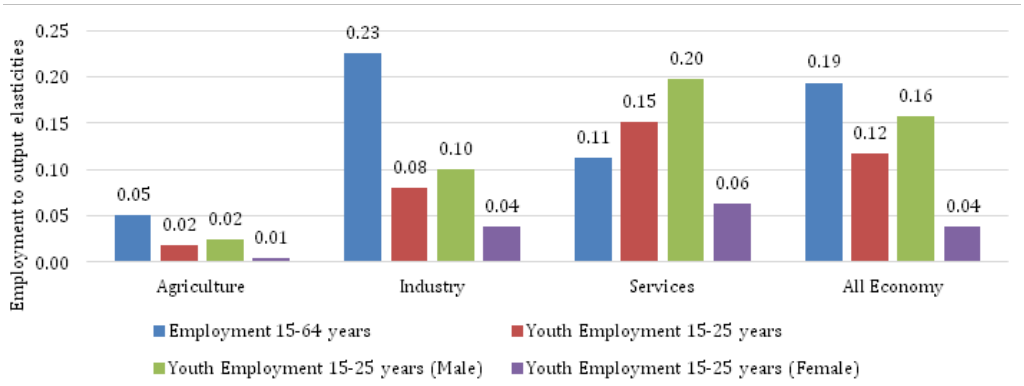
This study combines macro and micro level analysis to identify the main sectors and firms that present the greatest potential to boost productive employment in Tunisia. The macro level analysis uses aggregate data at the sectoral level to understand the main characteristics of structural changes, employment, and productivity growth in Tunisia. It aims also to study the structure of jobs using the Shapley decomposition method. The micro or firm-level analysis uses microdata from the Tunisian Business Register (Répertoire National des Entreprises - RNE) covering the last two decades and goes into more details of the process of reallocation by using static (Olley and Pakes 1996) and dynamic (Foster et al. 2001) decompositions of the aggregate productivity.

The results shows that the agriculture is the only sector the only sector that recruits less (from 20% in 2000 to 14% in 2019), with a constant share in value added of about 10%. During this period thus, services sector (transport & communication, commerce, and other services) generated and increasing share of value added from 56% in 2000 to 69% in 2019 suggesting that it would result in a crucial contribution to employment generation. But against all expectations, increase in job creation did not have better records. Indeed, the sector's contribution to total employment increased only by 6 percentage points from 46% to 52% between the two dates. We can therefore conclude that the services sector is a "jobless growth" sector where employment growth was much lower than output growth. The share of manufacturing sector in total value added has declined from 20% in 2000 to 14% in 2019 with a decrease of 2 percentage points in its contribution to total employment (from 20% in 2000 to 18% in 2019).

The results of employment to output elasticities show that for all sectors, an increase of 1% in value added has been accompanied by a lower increase of 0.19% in employment for the population between 15 and 64 years. A same increase in the output only generates an increase of 0.11% in employment for young people aged 15 to 25 years with a significant gap between the two sexes (0.16% for males against only an increase of 0.04% for females). The growth of the output of the services sector generates more employment for young people, especially males (a 1% increase in value added produces an increase of 0.20% in employment for males and only 0.06%

for females). For the population aged between 15 and 64, a 1% increase in industry output generates twice as much employment as the services sector (0.23% vs. 0.11%). Employment creation due to output growth in the agricultural sector remains low, especially for young people.

Figure 1 : Employment-output elasticities, 1990-2018

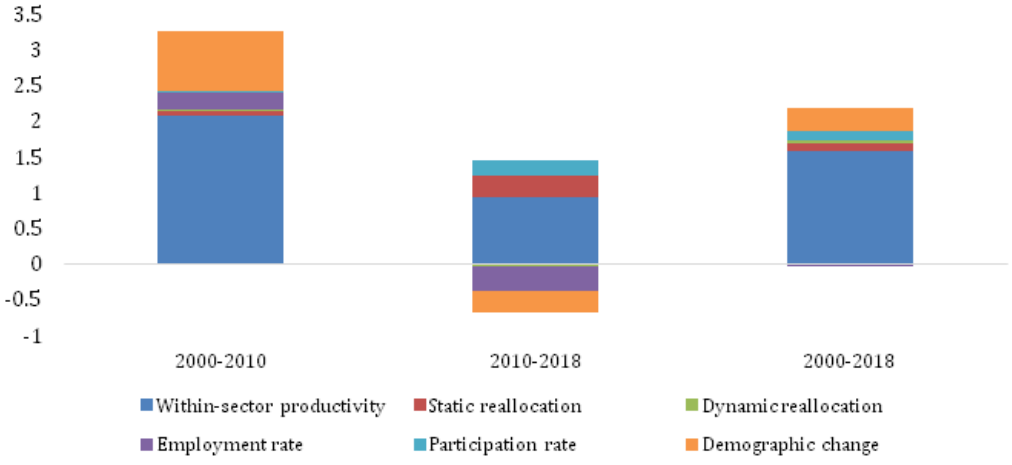


The Shapely decomposition of per capita value added (McMillan et al. 2014, McMillan and Harttgen 2014) into its main components at the aggregate level (all combined sectors) show that throughout the 2000-2018 period, Tunisia faced modest average growth rate of 2.15% per year in per capita value-added, with greater disparities before and after the revolution (3.27% per year during 2000-2010 and only 0.76% per year after 2011) (Figure 2). Labor productivity growth contributes to 81% of the total growth, while the increase in the share of working age population (demographic change) explains only 15%. The contribution of the changes in participation rate to the growth in per capita value added remains positive but low and does not exceed 5%. The employment rate fell by 0.4% per year, explaining the 2% of the contribution to the value-added per capita growth between 2000 and 2018.

After 2011, the value added per capita has decreased considerably (0.76% per year) owing to the negative contribution of employment (-47%) and demographic change (-40%). The observed per capita value-added growth over 2011-2018 did not create sufficient jobs and did not absorb the growing workforce into the labor market. In other words, the growth in value added per capita between 2011 and 2018 was “jobless growth” that is satisfactory job creation did not accompany growth. Value added per capita growth over this period was driven by increased productivity and by participation rate, rather by an increase in the employment rate. This poor performance could be attributable to political instability that unable the private sector to generate employment, new job opportunities and those to reduce unemployment. In fact, private firms were lead to reduce their workforce manage

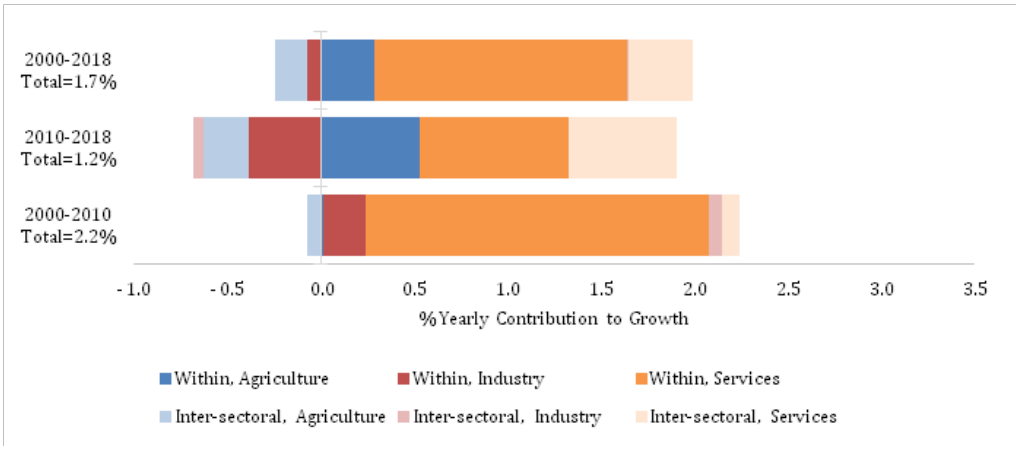
the shock of the revolution and the resulting economic turmoil. Some companies went out of business and have closed their production units and thus some people were unemployed for a period. On the other side, the massive hiring in the public sector between 2011 and 2013 was neither productive nor efficient and did not influence the growth performance, but instead had caused inflation and monetary instability, which in turn negatively impacts growth and employment. When -40% of the total change in value added per capita can be explained by changes in the share of working age population (demographic change), the increase in the dependency ratio will negatively impact the per capita growth. However, adults have a significant value added per capita effect, since their participation rate made a positive contribution of 26%.

Figure 2 : Decomposition of Growth in per capita value added



In addition, the shapely decomposition shows that the contribution of productivity change to the growth in Tunisia's GDP per capita between 2000 and 2018 was mainly due to productivity growth within sectors (1.58 of 1.75, representing 90%) (Figure 3). This contribution comes mainly from the services sector (1.35) and the agriculture sector (0.29). The contribution of the industry sector is negative (-0.07). The overall effect of inter-sectoral structure shifts of capital and labor (reallocation) represents only 10% of the total change in productivity (0.17 of 1.75). This inter-sectoral structure shifts are the result of reallocation of capital and labor from agriculture (-0.18) to services (0.34). The industry sector did not benefit from this reallocation. The period from 2011 to 2018 is characterized by a decline in the performance (within) industry and services sectors versus an improvement in the performance of agriculture sector. Only services sector has benefited from the reallocation of resources from agriculture sector.

Figure 3 : Productivity change decomposition: Annual contribution to per capita value-added growth by major sector



The Olley-Pakes (Olley and Pakes 1996) decomposition by sector shows that the agro-food has the highest average of the aggregate productivity (12.30) followed by the chemical sector (11,93). The textile & clothing sector has the lowest aggregate productivity of 10.77 (the same ranking is observed for the two periods before and after 2011). Otherwise, aggregate sectoral productivity is largely explained by the within component. Among the 6 manufacturing sectors, only two sectors (agro-food and ceramics and glass bulding) show positive aggregate productivity annual growth rates over the 2000-2020 period (0.14% for both sectors), while the annual growth rates for the other sectors of textile, other industries, mechanical & electrical, and chimical industries are negative in the order of -0.14%, -0.18%, -0.05% and -0.03%, respectively. Nearly all of the increase in aggregate productivity by sector can be attributed to growth in average productivity, rather than reallocation. This result suggests the existence of barriers that prevent the reallocation of resources to the most productive firms and/or to the most innovative ones, thus hindering the economy's ability to generate wealth and jobs.

Results for the Foster et al. (2001) dynamic decomposition by sector shows that the agro-food sector shows positive growth in labor productivity over all sub-periods with a downward trend: it about 3.5% in 2006-2010, 1.7% between 2011 and 2016 and only 0.8% during the last sub-period 2016-2019. Labor productivity in the three sectors of chemical, ceramic and glass and mecanical and electrical shows negative growth rates in the first sub-period after the revolution. The effect of the revolution is most noticeable in the chemical and Mechanical and electrical sectors, which experienced a decline in productivity of almost 5.6%. The ceramic and glass sector is the least affected (a nagative growth rate of 0.2% with an immedite recovery rate of 2.3% during the period 2016-2019). The textile and clothing sector had a recovery in productivity after the revolution, starting from a rate of 0.3% during 2011-2015 to 2.2%

for the period between 2016 and 2019. In terms of contribution to labor productivity, the within and between components contribute negatively to productivity growth, while the cross term accounts for the majority of changes in labor productivity growth whatever the sector. The entry effect contribution remains small, specifically during the 5-years after the revolution, and negative for the chemical and mecanical and electrical sectors (-1.4% and -2.5%, respectively).

As a conclusion, Tunisian manufacturing sector is hampered by a waste and a misallocation of resources between firms as capital inputs are directed from their productive uses with too many resources going to less productive firms. Here, agro-food sector outperformed the highest average of the aggregate productivity, followed by the chemical sector. The textile & clothing sector has had the lowest figures. Within-firm and between-firm components negatively impact labor productivity growth and slow down efforts aimed at reducing unemployment.This is providing clear evidence of low firms performance as job creators. The negative contribution of between-firm effects highlighted the necessary reallocation of ressources from less to more productive firms. Entry and exit contributed only negligibly to changes in labor productivity between 2000 and 2020. The positive net entry of 2% identifies entry firms as contibutory factors more than exiting ones.

Public actions and policy recommendations

Manufacturing remains the sector with greatest potential for job creation, it is thus opportune to provide it with adequate support measures to increase its productivity, for example by improving the skills of employees and providing them with transferable ones or by encouraging innovative projects. Support for research and development, and training in manufacturing can also be improved. These interventions depend on the size of firm and its sector of activity. For example, for large manufacturing firms, it is important to support their capacity for innovation (promote cooperation between firms and universities; between firms and research centers; ensuring appropriate resources and infrastructure needed for innovation; etc.), to help them find new international markets and to simplify export procedures.

The government should implement policies to improve the competitiveness of firms and the export orientation as well as structural changes towards high-tech exports (the Republic of Korea is a good and successful example). For small manufacturing firms, access to financing presents the main obstacle. Providing the necessary financial resources can help these firms especially during the start-up period. Financial and/or fiscal support for these young and small firms should be limited in time, as these interventions may prevent the entry of more productive firms and thus slow down the process of reallocation of resources in the economy.

The results show also that service sector generates more jobs for youth, while the manufacturing sector generates more jobs for the whole population. Improving the links between the two sectors (manufacturing-related services, such as design, research, engineering, marketing, logistics services, e-commerce platforms, etc.) and increasing 'servicification' of manufacturing (smart manufacturing, information technology and digital processes) can be beneficial for the job creation. In parallel with this servicification of manufacturing, which is an advanced stage in structural transformation, the modernization and industrialization of agricultural sector as well as the industrialization of rural areas and the support of employment intensive technologies remain necessary for decent and productive jobs creation.

Tunisian policymakers should focus on reducing political, social, and economic instability by seriously addressing its root causes, such as high unemployment rates, regional disparities, and income inequality. A serious social dialogue process is needed at this time to shape the relationship between the government and different social groups to produce a better business environment that improves firm's performance. The political instability that Tunisia has experienced over the past decade has reduced the credibility of the state and its involvement with its citizens. The lack of trust and the absence of transparency are an obstacle for businesses investing in Tunisia, despite the progress made in terms of legislation and development strategies. Building a climate of trust and transparency can stimulate national and international investments needed for job creation. In addition, improving transparency and business environment also requires the simplification of regulations and formalities, which is necessary to free up economic initiative and reduce costs to firms. It is also important to accelerate the reform of the social insurance system to expand coverage and improve incentives to create formal sectors jobs.

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