



Services, jobs, and economic development in Africa

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- This brief presents findings from a research project that provides access to new data on servicification of economic activity at the subnational level in thirteen African countries.
- Services are the main source of employment generation, especially for educated workers and for women.
- Significant shifts in the composition of employment towards services have occurred, both across and within countries, with growth occurring in service-related occupations across all sectors of the economy.
- Using per capita nightlight luminosity as a proxy for economic development, the data reveal a strong positive association between higher-skill services and economic activity, with potential implications for regional inequality.
- There is substantial heterogeneity across services activities, influenced by market conditions and technology.
- The findings illustrate the importance of microdata to identify heterogeneity across services activities as a function of observable characteristics of individual workers and local markets
- Services, and more generally intangible activities, complement manufacturing and industrial production.

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Introduction

A central feature of the successful structural transformation of most economies in the 20th century involved a shift of workers from agriculture to manufacturing (Herrendorf et al., 2014). However, this pattern of economic growth and development may be less applicable to lower-income countries today than it was in the past.

An important stylised fact in this regard is that low-income countries are moving into services earlier and at a faster rate than was observed for East Asian economies in the 1970s and 1980s. The associated "premature deindustrialisation" (Rodrik, 2016) is a potential source of concern insofar as it implies that low-income countries today cannot rely on an expanding manufacturing sector to create employment opportunities for relatively unskilled workers, drive economic growth and increase per capita incomes. Others argue that services-led sectoral transformation can drive sustainable development prospects (Newfarmer et al., 2018; Hsieh and Rossi-Hansberg, 2021; Nayyar et al., 2021). Moreover, research shows that the services content of manufacturing value added has been rising (Lodefalk, 2015), and that this is increasing the salience of services trade policies for overall export performance and manufacturing productivity (Beverelli et al., 2017; Hoekman and Shepherd, 2017). Research also shows that global value chains increasingly span services as well as agriculture and manufacturing (Nano and Stolzenberg, 2022). Hence, it is important to understand the process of servicification when designing economic policy.

In a recent IGC paper (Baccini et al., 2021), we contribute to the emerging literature that analyses structural transformation in low-income economies using microdata, as opposed to focusing on trade, global value chains and broad sectoral shifts and aggregate indicators of output and employment at the country level.

This policy brief draws on Baccini et al. (2021) to present new data on the composition of jobs in services at the sub-national level in a sample of thirteen African countries, describes how this has changed over time, and summarises some exploratory analysis assessing the relationship between (i.e., changes in sectoral employment and associated occupations) and indicators of economic development commonly used in the literature. A companion project webpage¹ provides country-specific graphs and maps plotting changes in sectoral employment and occupational dynamics over time.

¹ <https://globalgovernanceprogramme.eui.eu/services-and-economic-development-in-africa>

Individual level data

Baccini et al. (2021) use the IPUMS International Database published by the Minnesota Population Center. This is a compilation of census data for countries around the world. We extract data from IPUMs for all African countries for which at least two censuses are available, and they include information on the industry employing an individual.

The resulting dataset has information on 56 million individuals located in 1,546 administrative units in 13 African countries.² For these countries, either two or three census waves are reported in IPUMS, spanning a period ranging between 1982-2013. The sample is representative of the Africa region, including both low-income countries whose GDP per capita is about USD 1,000 (Malawi, Mozambique), middle-income countries such as Mauritius; resource-rich countries (Botswana, Zambia), more diversified economies (South Africa and Morocco), landlocked countries (Rwanda) and countries with sea borders and a strong tourism industry (Mauritius, Tanzania).

Structural transformation towards services: subnational-level data

The shift towards services that is generally found at the country level is evident in our sample of subnational units in Africa. Across all the administrative units in our sample of countries, there is a decline in the total share of employment in agriculture of six percentage points, offset by an equivalent increase in the share of employment in services sectors.

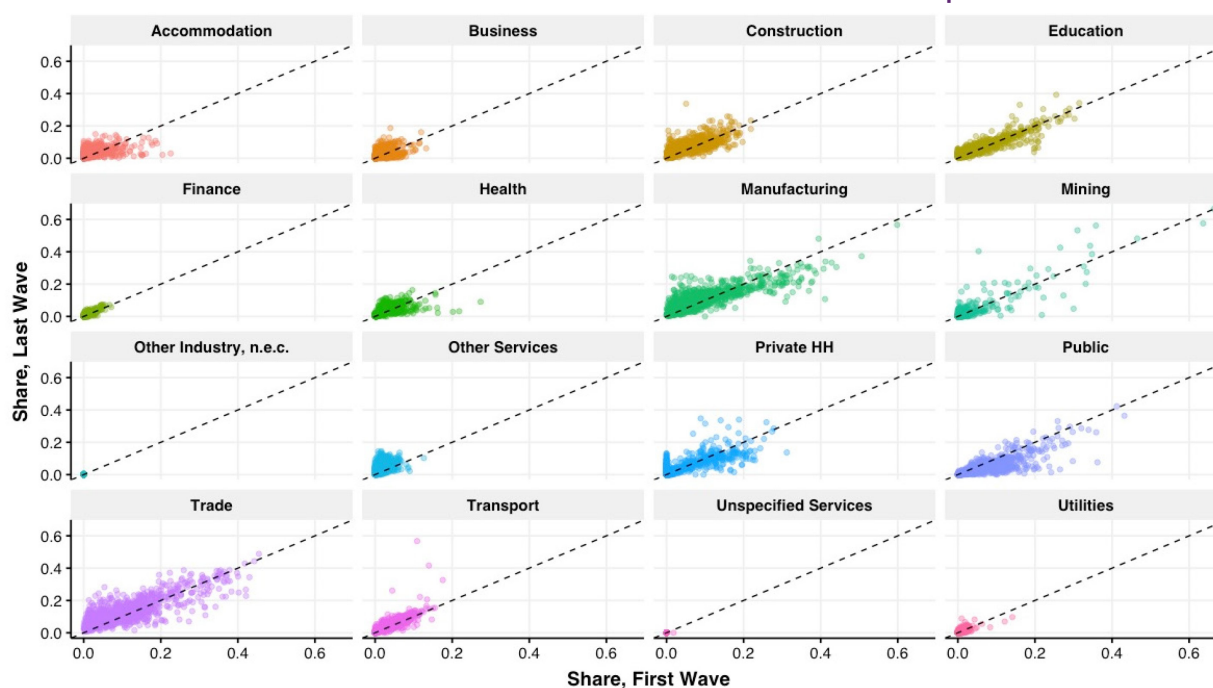
Figure 1 plots decadal changes in employment shares across the primary, secondary and tertiary sectors. Across all subnational units, the share of agriculture in total employment declines while that of services increases. The pattern of a rising share of services in employment is observed across the sample, independent of GDP levels or per capita income and stage of development (for example, Egypt vs. Malawi) or dependence on natural resources (Botswana vs. Benin). The share of the secondary sector generally increases as well, mostly in geographic units with a low initial base. This is offset by administrative units with initially high shares of secondary sector employment, which often register a reduction in employment share over time.

² The sample includes Benin, Botswana, Egypt, Ghana, Malawi, Mali, Mauritius, Morocco, Mozambique, Rwanda, South Africa, Tanzania, and Zambia.

FIGURE 1: Change in sectoral employment shares at the subnational level


Note: Each dot represents an administrative unit that is observed over two successive waves of the census. **Source:** Authors' elaboration on IPUMS.

Figure 2 reports similar information at the industry level (at the 2-digit level of the ISIC rev. 3). A few industries within services appear to drive the trends observed in Figure 1, notably trade (distribution services) and construction. Business, finance and other services also increase but from a very small base. Country-specific data reveal interesting heterogeneity across sectors over time (for example, a visible decline in public sector employment in Botswana, Tanzania and South Africa).

FIGURE 2: Structural transformation at the subnational level: sector-specific data


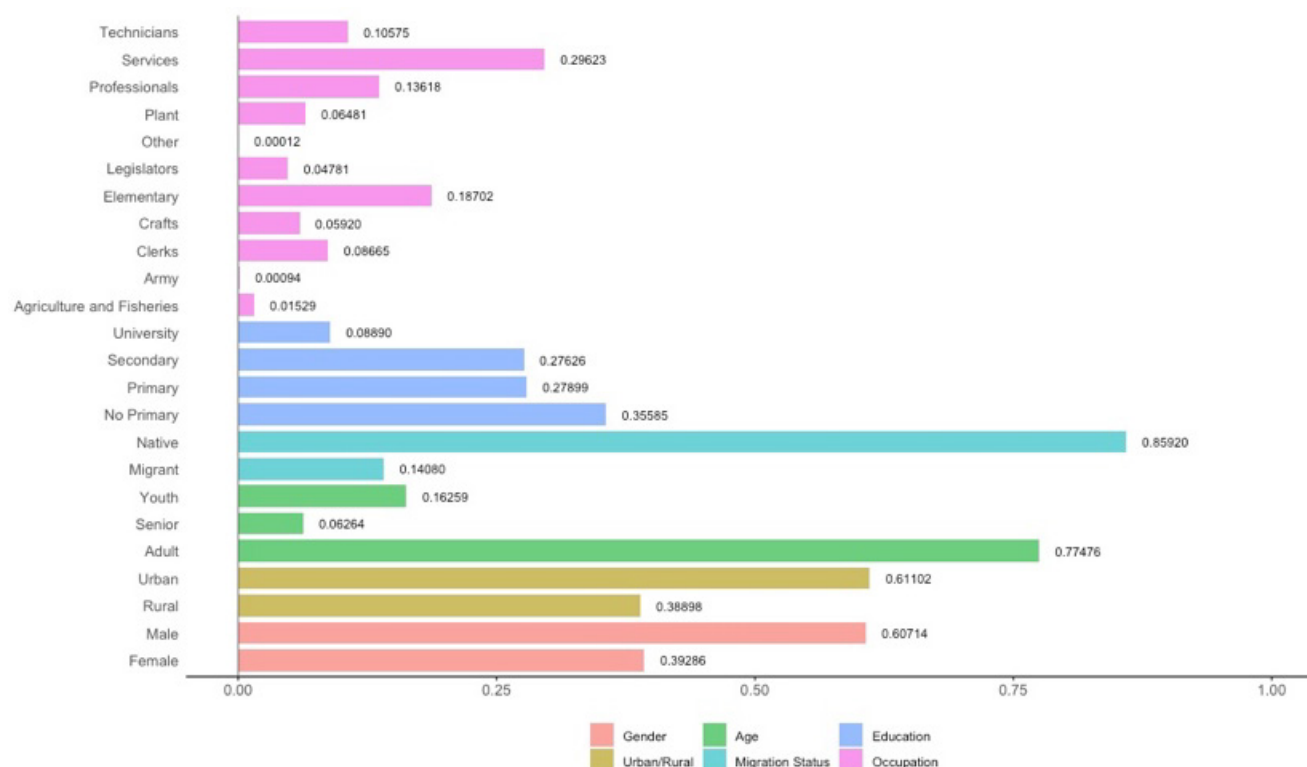
Note: Each dot represents an administrative unit that is observed over two successive waves of the census. The agricultural sector is excluded to allow a better visualisation of smaller industries (given that all industries share the same values in the Y-axis). Source: Authors' elaboration using IPUMS.

Who works in services?

While services are a major source of employment in Africa, surprisingly little is known about their characteristics and their composition. In our paper, we decompose the characteristics of workers according to the following dimensions: gender; urban/rural residence; age cohorts; migration status; education and occupation³.

Figure 3 summarises the average characteristics of workers in services across all the countries included in our sample. Compared to manufacturing, services workers are, on average, more educated, engaged in higher-skilled occupations, and more likely to be female – 40% of employees are women, a proportion twice as large as in manufacturing. Some of the more skilled occupations are concentrated in services, including education. Overall, 8.9% of those employed in services hold a university degree (2.8% in manufacturing), and 27.6% have a secondary school level (15.1% in manufacturing).

FIGURE 3: Characteristics of workers in the services



Source: Authors' elaboration on IPUMS.

³ Occupations are classified at the 1-digit level of the International Standard Classification of Occupations (ISCO) 1988 scheme.

Services and economic development

Exploratory analysis of the relationship between services and economic development, using per capita nightlight luminosity as a proxy, reveals substantial heterogeneity. We distinguish between high and low skills services sectors by sorting service industries by the intensity of use of workers who have a university degree and are engaged in more complex occupations. Sectors that use these categories of workers more intensively than the average observed in manufacturing are classified as high-skill. Disaggregating the tertiary sector by skill intensity reveals that only higher-skilled services are strongly associated with development. We also show that the strong positive association between high-skill services sectors and development is mediated by geography, institutions and technology. Greater incidence of malaria, the presence of a mining facility and below-average mobile phone coverage in an administrative unit reduces or undoes the significance of the positive association.

Jobs and productivity in the longer term

In line with Lagakos and Shu (2021), our analysis demonstrates how exploiting the potential of microdata can help account for the high degree of heterogeneity across services activities as a function of observable characteristics of workers. Exploratory analysis of the relationship between services and economic development, using per capita nightlight luminosity as a proxy for growth, reveals no evidence that services in the aggregate are associated with economic development. There is, however, substantial heterogeneity across different services industries. When we distinguish between high- and low-skills services sectors – classifying sectors as high-skill based on their above-average use of workers with university degrees or those engaged in complex occupations compared to manufacturing – we find that higher-skilled services are strongly associated with development. The positive association between high-skill services sectors and development is mediated by geography, institutions, and technology.

Services activities that account for much of the growth of service-sector employment are concentrated in trade (distribution) and transport, low-skilled services that are negatively associated with our nightlights proxy for growth. This pattern underlies the overall null correlation observed between services in the aggregate and development. What explains this pattern is an important question for research. One factor may be that these activities grow more rapidly in the early stages of structural transformation, which is associated with small-

scale firms. They may become more productive over time as economies of scale are realised in these sectors and infrastructure improves. Investigating these types of factors requires complementing the census data with firm-level information at the administrative unit level. Doing so is necessary for developing a better understanding of the role services play in structural transformation and the prospects for increasing productivity and employment generation. While lower-skill services activities may have less potential to support growth, these activities do generate employment and, thus, income. From an aggregate growth perspective, however, our results suggest that policy should focus on supporting the expansion of higher-skill activities.

Although the overall share of secondary sector employment in the sample of countries is stable, there is significant heterogeneity across sub-national geographic units. The data reveal reductions in industrial employment shares in locations where such activity accounted for relatively high shares of total employment in the initial census year, as well as numerous increases in areas where industry accounted for relatively low shares of total employment. Baccini et al. (2021) provide weak evidence that manufacturing employment growth in these locations is associated with servicification, in the sense that employment in occupations associated with intangible outputs appears to grow in many regions where the share of employment in the secondary sector increases between two census waves.

Our findings suggest several areas on which future research could focus. One is to analyse the evolution within services across the sampled countries to understand better the relationship between high-skills services and economic development. A corollary research question pertains to the role of services in explaining manufacturing employment dynamics, including analysis of the extent to which servicification is occurring in manufacturing. More broadly, insofar as high-skills services are associated with development, future research to assess the drivers of demand for such services and possible complementarities between services activities would seem apposite. Another area for research suggested by the data concerns the distributional implications of the shift towards services. Existing research has shown that the type of structural transformation towards services matters for understanding development. Using subnational data for high-, low- and middle-income countries, Chatterjee and Giannone (2021) find that the development of highly productive types of services is associated with greater regional inequality. Further research on such questions using micro data for African countries is important to understand better the implications of the shift to services and to identify policies that can help address adverse distributional consequences.

References

- Baccini, L., Fiorini, M., Hoekman, B., & Sanfilippo, M. (2021). *Services, jobs and economic development in Africa*. International Growth Centre working paper (forthcoming, World Bank Research Observer). Retrieved from <https://cadmus.eui.eu/handle/1814/73060>
- Beverelli, C., Fiorini, M., & Hoekman, B. (2017). Services trade restrictiveness and manufacturing productivity: The role of institutions. *Journal of International Economics*, 104(1), 166-182. Retrieved from <https://voxeu.org/article/services-trade-liberalisation-and-institutions>
- Crozet, M., & Milet, E. (2015). The future of manufacturing lies in services. *VoxEU.org*. Retrieved from <https://voxeu.org/article/future-manufacturing-lies-services>
- Davies, E., Hallward-Driemeier, M., & Nayyar, G. (2022). For services firms, small can be beautiful. *VoxEU.org*. Retrieved from <https://voxeu.org/article/services-firms-small-can-be-beautiful>
- Herrendorf, B., Rogerson, R., & Valentinyi, A. (2014). Growth and structural transformation. In *Handbook of Economic Growth* (Vol. 2, pp. 855-941). Amsterdam: Elsevier.
- Hoekman, B., & Shepherd, B. (2017). Services productivity, trade policy and manufacturing exports. *The World Economy*, 40(3), 499-516.
- Hsieh, C., & Rossi-Hansberg, E. (2021). The industrial revolution in services. Center for Economic Studies Working Paper CES-21-34. Retrieved from <https://www.census.gov/library/working-papers/2021/adrm/CES-WP-21-34.html>
- Lagakos, D., & Shu, M. (2021). The role of micro data in understanding structural transformation. *STEG Pathfinding Paper*. Retrieved from <https://steg.cepr.org/publications/role-micro-data-understanding-structural-transformation>
- Lodefalk, M. (2015). Tear down the trade-policy silos! Or how the servicification of manufacturing makes divides in trade policymaking irrelevant. *VoxEU.org*. Retrieved from <https://voxeu.org/article/servicification-manufacturing-and-trade-policy>
- Nano, E., & Stolzenberg, V. (2022). Global services value chains: A new path to development. *VoxEU.org*. Retrieved from <https://voxeu.org/article/global-services-value-chains-new-path-development>
- Nayyar, G., Hallward-Driemeier, M., & Davies, E. (2021). *At your service?: The promise of services-led development*. Washington DC: World Bank.
- Newfarmer, R., Page, J., & Tarp, F. (Eds.). (2018). *Industries without smokestacks: African industrialization revisited*. Oxford University Press.
- Rodrik, D. (2016). Premature deindustrialization. *Journal of Economic Growth*, 21(1), 1-33. Retrieved from <https://voxeu.org/article/premature-deindustrialisation-developing-world>