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Regional Economic Inequality in Egypt: trends and policies for mitigating territorial disparities ^[1]

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1. Executive Summary

This policy brief highlights the trends of regional (inter-provincial) economic inequality in Egypt over the past three decades. It shows that regional inequality has been high, and has risen between the mid-1990s and mid-2010s. A recent decline in the last decade was driven by shocks, most notably, the structural adjustment program launched in 2016. This decline has been short-lived and resulted from a short-term fall in output per capita in wealthier provinces, rather than accelerated growth and convergence of poorer ones.

The brief explores policy toolkits to reduce territorial economic disparities and foster regional convergence, which differ from policies that target individual-level income inequality. Relevant policy recommendations focus on place-based toolkits, which include scaling public investments in infrastructure and human capital development in lagging regions; offering place-based sectoral policies to encourage private sector investments and job-creation in particular regions; and strengthening local governance in these regions.

The study contributes to the research on inequality in Egypt and neighbouring Arab countries, particularly the 'Arab inequality puzzle'. The puzzle refers to the consistently low/falling income inequality from official estimates in Egypt and the region, based on household surveys, which contradict the popular perception of rising inequality that has arguably fuelled the Arab Spring.

2. Introduction

Regional disparities are quite evident in Egypt. There is stark inequality in development between provinces and regions in the country. The per capita output in the richest province in Egypt, by the Red Sea coast, was 26 times that in the poorest province, in the southern region, in 2020/2021, according to official data from the Central Agency for Public Mobilization and Statistics (CAPMAS). Poverty data highlights this issue as well; 42.8% of the rural population, and 12% of the urban population in Upper Egypt (southern) provinces were poor, compared to 23.1% of the rural population, and 4.4% of the urban population in Lower Egypt (northern) provinces in 2019/2020.



Economic inequality in Egypt and the Arab region has received significant attention since the Arab Spring in 2011. The protests were arguably motivated by a popular perception of rising inequality in the leading years, despite official data implying remarkably low inequality measures, whether in Egypt or the region, which is why this phenomenon has been dubbed the ‘Arab inequality puzzle’ (World Bank, 2015; Hlasny and Verme, 2018).

Various arguments have been provided in recent literature to explain the Arab inequality puzzle. These include that it was not rising inequality, but a broken social contract that motivated the protests (Devarajan and Ianchovichina, 2018). A different argument implies that official measures of inequality, which are based on household surveys, are imprecise and underestimate inequality in Egypt, since they fail to capture top incomes in the country, particularly as the alternative tax records data are unavailable (Achcar, 2020; Abdel Ghafar, 2021). Estimates based on house prices for the year 2009, suggest that the Gini index of household per capita income for Urban Egypt could be as high as 0.52 compared to an official value of 0.39 (Van der Weide et al., 2018); other findings refer to the role of non-wage and informal incomes that could explain the seemingly low official inequality (Krafft and Davis, 2021).

More recent findings using household surveys as well argue that inequality within provinces in Egypt has in fact increased on average in the last 15 years, while not challenging the low and stable official national inequality figures, owing to the reliance on the same household survey data (Savoia et al., 2024).

This paper contributes to the literature on inequality in Egypt by measuring regional (inter-provincial) economic inequality using provincial-level real output per capita data, aligning with a growing body of regional disparities literature (Li and Gibson, 2013; Lessmann and Seidel, 2017; Liu et al., 2024). The use of output per capita on the provincial-level means that the paper measures inequality of average living standards between provinces in a given year, which is different from measuring inequality of incomes between individuals using household surveys. However, as poverty and prosperity tend to cluster geographically in regions, as highlighted earlier from official data, regional inequality could still be a useful proxy for individual income inequality in Egypt. This is supported by evidence from the literature, of positive correlation between personal income inequality and regional economic inequality (Amos Jr., 1983). Nonetheless, one limitation of this regional inequality measure is that it does not capture inequality within provinces. Average output per capita in a given province could mask significant levels of inequality in this province, even as wealth and poverty tend to cluster in regions as mentioned. However, measuring within province inequality using the same approach will require data on output per capita at the sub-provincial level, such as neighbourhoods or villages, which is unavailable for Egypt.

Following the first objective, of measuring regional economic inequality, the research examines whether a recent decline in inequality - measured by the Gini index in particular - in Egypt might have been caused by shock(s), instead of regional convergence. The research focuses on the effect of the structural adjustment program launched in late 2016, which is one of the largest shocks to the Egyptian economy in the last few decades, and marks a significant departure from the social contract established in Egypt and Arab countries since the 1950s.

3. Approach and Results

3.1. Methods

The research measures regional economic inequality in Egypt using annual provincial real output per capita from 1992 to 2022. Two population-weighted inequality measures are calculated, the Gini (GINIW) and Theil (THEILW) indices. The inequality measures are population-weighted to give smaller (larger) regions a smaller (larger) weight in the overall inequality measure. Thus, highly unequal population distribution within the country is taken into account. One difference between non-weighted and weighted inequality measures is that non-weighted measures capture inequalities between spatial units, whereas the weighted measures could be interpreted as measures of intergroup inequality in a country, where groups of people are formed by their place of residence (Lessmann and Seidel, 2017).

To measure the effect of the 2016 structural adjustment program on regional inequality in Egypt, the research employs the Interrupted Time-Series Analysis (ITSA). In an interrupted time-series analysis, an outcome variable, GINIW in this research, is observed over multiple, equally spaced time periods before and after the introduction of an intervention/treatment that is expected to interrupt its level or trend. A main advantage of ITSA is that it can be applied for a single treated group, without a control one, in case the latter is unavailable (Linden, 2015). This is relevant for the data utilized in this research, where there is no control group (countries), since there is a lack of similar regional inequality data for the same period, for countries in the comparable Middle East and North Africa (MENA) region, in particular.

3.2. Results

The results of the population-weighted Gini and Theil indices for regional inequality, are shown in panels (A) and (B), respectively, of Figure 1. They show that regional economic inequality in Egypt declined in the early 1990s up to the mid-1990s when it started to rise for almost two decades. Regional inequality subsequently declined, since the mid-2010s. The results of the regional economic inequality measures from 1992 to 2022, using population-weighted Gini and Theil indices, tell a different story of economic inequality in Egypt, both for its level and trend, compared to the official personal income inequality estimates from household surveys. Regional inequality, using the population weighted Gini index is much higher for the entire period than official Gini values since 1990. Furthermore, while the official personal income Gini estimates show that inequality was at its highest in 1990 and has largely declined since then, with some volatility over time, the regional inequality findings point to a persistent rise between the mid-1990s and the mid-2010s.

Fig. 1: Population-weighted Gini and Theil indices for regional inequality in Egypt, 1992-2022.

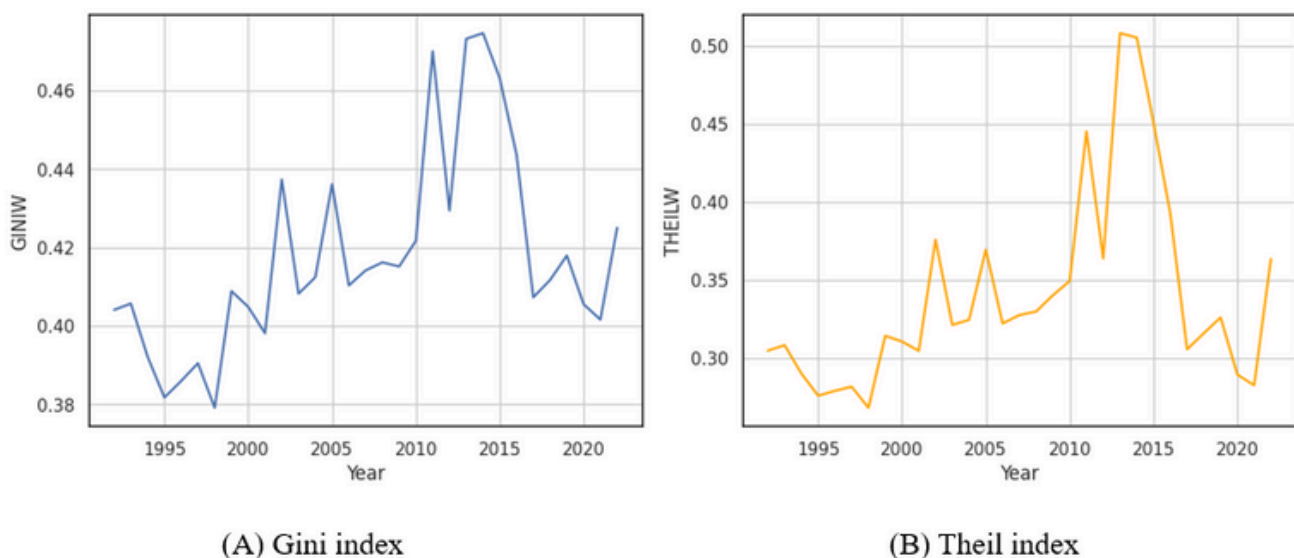
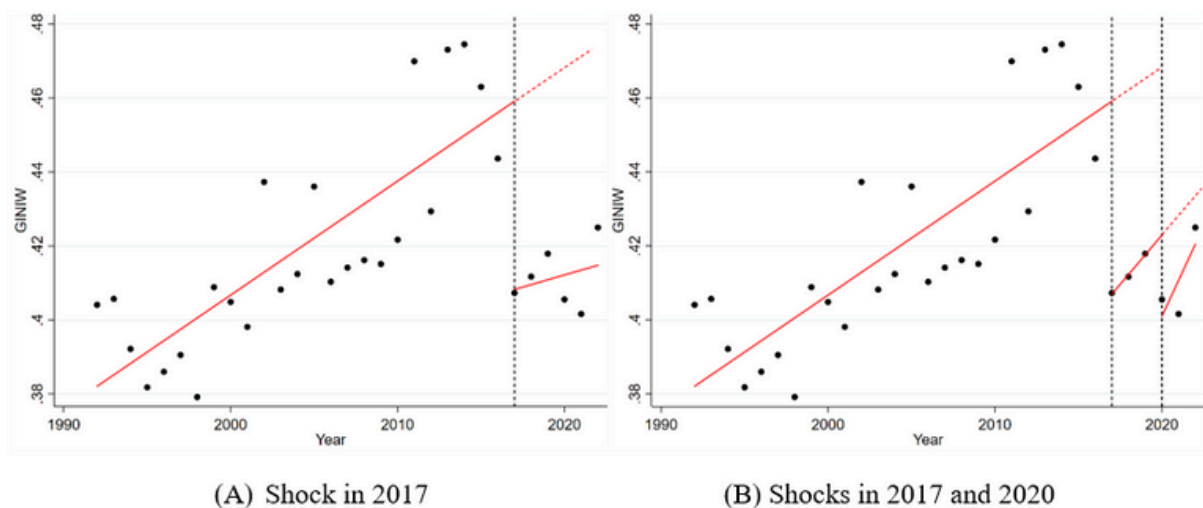


Figure 2 shows the effect of the structural adjustment program on the population-weighted Gini index in Egypt in panel (A), and the effects of both the program and Covid-19 in panel (B). The trend of regional inequality before and after the shock(s) is shown in the red solid lines. The counterfactual, that is the projected regional inequality trend if the shock(s) did not occur, is shown in the red dashed line(s).

The figure shows in panel (A) that the level of the Gini index has dropped since 2017, but the rising trend seemingly persisted, however at a flatter slope. When the Covid-19 shock is accounted for as well in 2020, as panel (B) shows, regional inequality levels immediately drop after both shocks as well, and the rising trend is also resumed from the lower levels, indicating that there has not been a reversal of the rising trend after the shock(s), but only a temporary decline in the level of inequality.

Fig. 2: Effect of the structural adjustment program (2017) only, and with and the Covid-19 (2020) on the population-weighted Gini index in Egypt, 1992-2022.



According to the results of the ITSA, particularly when the COVID shock is accounted for, there is no evidence of a declining trend of regional economic inequality in Egypt after the 2016 structural adjustment program. This implies that there is no pattern of convergence of the poor provinces with the wealthier ones after the program – or the Covid-19 shock. The more plausible explanation, which is supported by the larger volatility in the Theil index, is that the program might have had a larger immediate negative effect on the output per capita of the wealthiest provinces, resulting in a temporary drop in regional inequality level, after which the disparity in growth between the wealthy and poor provinces resumed its growing trend, with an even faster pace.

5. Conclusion

This research measured regional inequality in Egypt from 1992 to 2022. It provided evidence that regional inequality has been significantly high and has risen in Egypt for almost two decades from the mid-1990s up to the mid-2010s. Even though regional inequality is different from personal income inequality, it captures inequality in average living standards between provinces' inhabitants, and remains a useful proxy for economic inequality in Egypt, given the geographic clustering of prosperity and poverty in the country, and the evidence from previous literature that the two measures are correlated.

Hence, relying on the regional inequality estimates, with their high and rising trend since the mid-1990s, renders the Arab inequality puzzle less puzzling in Egypt. The popular perception of high/rising inequality in Egypt, which could have fuelled the popular uprising in 2011, might indeed reflect a reality which the official estimates failed to capture.

Furthermore, the paper also provided evidence that a seeming reversal of the trend of regional inequality in Egypt into a declining one, following the 2016 structural adjustment program, is in fact a temporary drop, followed by a resumed increase in inequality, with an even faster pace, particularly when the Covid-19 shock is accounted for. The temporary drop in inequality following the program's adoption, and the Covid-19 shock, does not reflect convergence of poor provinces with wealthier ones on the back of accelerated per capita growth. It more likely stems from a larger decline in the real output per capita of the wealthier provinces, immediately after the shock(s), followed by resumed growth of the regional economic disparities.

6. Implications & Recommendations

The decline of inequality through convergence of the poor, whether in later stages of development, consistent with the Kuznets curve hypothesis, or in the cases that defied it with low inequality even at early stages, largely depends on economic redistribution policies (Acemoglu and Robinson, 2002).

Income Inequality vs. Regional Economic Inequality

The policy toolkit to address income inequality among individuals usually focuses on redistributing income or wealth from higher-income/wealth individuals to lower-income/wealth individuals through interventions that include progressive taxation, social safety nets such as cash transfers and targeted subsidies, or land reforms for example. Mitigating regional economic inequality on the other hand would require different policies to support regional convergence, by fostering faster economic growth in the poorer regions, compared to the wealthier ones.

Infrastructure Investment as a Driver of Regional Development

One key intervention for fostering regional economic development is infrastructure investment. Poor infrastructure in lagging regions can hinder economic activity by increasing transportation costs, limiting access to markets and services, and discouraging private investment. Public investment in transportation, energy, and digital infrastructure can help integrate lagging regions into national and global markets, fostering economic growth.

China's experience provides a notable example. The Chinese government has invested heavily in infrastructure projects, such as highways, railways, and airports, in its less-developed western regions since the late 1990s, in the 'Go West' program. These investments have helped reduce regional disparities by improving connectivity and attracting private investment (Fan et al., 2011). Similarly, the European Union's (EU) Cohesion Policy allocates funds to infrastructure projects in poorer regions, aiming to promote economic convergence among member states (McCann, 2015).

The Role of Industrial and Place-Based Policies

However, public infrastructure investment alone is not sufficient. It must be complemented by policies that attract private investments and foster job creation and output growth in poor regions, particularly in high productivity sectors. Regionally-targeted industrial policies can play a critical role in fostering economic growth in lagging regions.

Governments often implement place-based policies, such as tax incentives, subsidies, and special economic zones (SEZs), to attract investment and promote industrial development in less-developed regions. For example, South Korea's regional development strategy highlighted regional industrial development, with a focus on establishing free economic zones (FEZs) and techno parks in economically weaker areas, incentivizing firms to relocate and invest outside the capital region (OECD, 2012).

In addition to traditional industrial policies, promoting regional innovation systems has gained traction. The smart specialization strategy in the EU's Cohesion Policy encourages regions to leverage their unique assets and knowledge bases to foster local innovation-driven growth (Foray et al., 2015).

Human Capital Development and Education Policies

For high productivity sectors to grow, place-based policies and infrastructure investments need to be combined with human capital development in the targeted regions. Investing in education and skills development is key for regional development by improving labour productivity, employability, and entrepreneurial returns in disadvantaged areas (Gennaioli et al., 2013).

China provides a valuable example in this context as well. Since 2005, the government has launched several policies to mitigate education inequalities across regions, particularly between the wealthy east coast and the central and western hinterlands. The policies included increasing public funding for education for the targeted regions, extending exemptions from tuition and miscellaneous fees for basic education, providing additional funding for rural areas and low-performance schools.

Such measures and others aimed at bridging the territorial gap in education in both the quantity and quality dimensions, to foster human capital development in the lagging regions in China (Xiang et al., 2020).

Governance, Decentralization, and Regional Disparities

Strengthening local governance is also key for fostering regional development to mitigate territorial disparities (Li et al., 2025). Channelling large public funds to infrastructure, education, and establishing industrial zones in disadvantaged regions could prove less productive if challenged by underdeveloped governance and administrative capacities in these regions.

A closely related factor to local governance is decentralization and whether it might mitigate or exacerbate regional inequalities. Decentralization could lead to more responsive governance and tailored economic strategies that address region-specific challenges; hence it could enhance regional economic development by granting local governments more control over resource allocation and policy decisions.

However, there is growing evidence that decentralization might mitigate regional inequalities in richer or more developed countries, while it might oppositely exacerbate disparities in poor or developing ones (Rodriguez-Pose and Ezcurra, 2010; Lessmann, 2012). A possible explanation is that decentralization at early stages of development, both political, fiscal, or else, would leave the disadvantaged regions in a developing or poor country with their own lacking resources for investments in infrastructure or human capital development, and less administrative capacities for efficient policy-making and planning (Xiang et al., 2020).

Consequently, it is necessary for the central government to support local ones in disadvantaged regions with funding, planning, and executing, to foster faster economic growth and mitigate regional disparities. However, this also comes at a risk of misallocation of resources by the central government across the regions, which requires a balance of central government intervention side by side with local governments' involvement.

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