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Inequality and Earnings Dynamics in Portugal: Exploring the Spatial Heterogeneity and Location Externalities

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Executive Summary

This policy paper highlights the persistence of deep territorial economic inequalities in Portugal, with marked income differences across regions, sub-regions, and especially parishes, alongside a highly stable spatial hierarchy over time. Inequality is predominantly interpersonal, occurring largely within territories, though this does not eliminate the relevance of geographical divides. In the labour market, some wage compression is observed, though regional differences persist. The main structural weakness lies in productivity: its distribution is strongly unequal and persistent, with higher levels in coastal areas and metropolitan regions. Although economies of agglomeration exist, their contribution is limited, with most differences explained by factors internal to firms, which reinforces the structural nature of the disparities.

Recommendations

- **Continuous monitoring:** Regularly publish regional income inequality indicators based on administrative data, using comparable methodologies (e.g., GRID).
- **Minimum wage:** Formally assess the impact of national minimum wage increases on inequality and employment effects at the regional level.
- **Regional policies:** Adjust territorial cohesion instruments to reflect persistent differences in the wage distribution across regions.
- **Productive modernisation:** Focus public support on internal firm improvement (management, digitalisation, efficiency), especially in regions with lower productivity.
- **Knowledge transfer:** Strengthen Interface Centres and CoLAB networks in less dynamic regions, promoting linkages between R&D institutions and local firms.
- **Skilled human capital:** Encourage the attraction and retention of qualified workers outside metropolitan areas through tax benefits, housing support, and quality public services.

Target Audience

Policy makers, senior public administration officials, and the general public.

Introduction and Problem Framing

Portugal is frequently cited as one of the most unequal countries in Europe. Yet systematic analyses tracking the evolution of income distribution over time and across regions, based on administrative data, remain scarce.
This study characterises the economic asymmetries across different geographical areas of Portugal. First, a systematic mapping of income heterogeneity is carried out at the level of NUTS 2, NUTS 3, municipalities, and parishes. In this dimension, asymmetries between regions and within regions are systematically contrasted. Second, an analysis

is conducted of the evolution of wage disparities across Portuguese regions. Third and finally, it must be emphasised that productivity is a central determinant of long-run economic growth, living standards, and an economy's capacity for real convergence. To this end, administrative micro-data is used to explore productivity trends over time, their spatial dispersion, and the location of externalities associated with economies of agglomeration.

Analysis / Key Findings

Income Asymmetries

This report analyses income inequality in Portugal between 2017 and 2022, with a focus on its territorial dimension. One of the main contributions of this work lies in the use of anonymised fiscal micro-data from personal income tax (PIT) returns, which allow income to be observed at the individual level with high reliability and near-universal coverage of the adult population residing in Portugal. A further distinguishing feature is the territorial granularity. The analysis is conducted at multiple levels, from broad regions (NUTS II) to sub-regions (NUTS III) and, crucially, down to parishes, the finest administrative unit in Portugal. This approach makes it possible to capture heterogeneities that are invisible in more aggregated analyses. In addition, regional convergence tests are performed, and a hierarchical decomposition of the Theil index is applied, allowing us to quantify the contribution of each territorial level to overall inequality.

At the aggregate level, the 2017–2022 period is characterised by a dynamic of inclusive growth. Total declared income rose by around 17% in real terms, while average income per taxpayer grew by approximately 10%. This evolution was accompanied by a significant reduction in inequality. The Gini index fell from 44.0 to 41.9, a meaningful improvement over a relatively short time interval, even though Portugal remains among the most unequal countries in Europe.

This reduction in inequality stems from a clear pattern of differentiated growth across the distribution. The bottom 50% recorded an average annual increase of 2.6%, with their average income rising from €5,659 to €6,632. In contrast, the top 1% grew by only 0.5% per year. In terms of income distribution, this translated into an increase in the share captured by the bottom of the distribution, from 21.1% to 22.4%, while the share of the top 10% declined from 33.6% to 31.9%.

Despite this progress, marked territorial differences in income levels persist. Greater Lisbon stands out clearly as the country's wealthiest region, with an average annual income of around €18,400, some 28% above the national average. The remaining NUTS II regions fall within a relatively narrow range, from around €12,900 in the North to €15,500 in the Setubal Peninsula.

These disparities become more pronounced when moving to the sub-regional level. At NUTS III, the ratio between Greater Lisbon and Tâmega e Sousa reaches 1.83, revealing a sharper territorial divide. The highest-income sub-regions are concentrated mainly in metropolitan areas, while the poorest sub-regions are located predominantly in the interior North and in parts of the interior Centre. The metropolitan areas of Lisbon and Porto, together with the Setúbal Peninsula, account for more than half of total declared income in the country.

Beyond differences between regions, there are also important variations in inequality levels within each territory. Greater Lisbon has the country's highest Gini coefficient (45.9), with a strong concentration of income at the top. In contrast, regions such as Alentejo or Oeste e Vale do Tejo display lower levels of inequality, with more homogeneous distributions. Over the period, a broad reduction in inequality is observed in virtually all regions, though with varying intensity.

The analysis gains a new, more revealing, dimension when moving down to the parish level. Here, territorial disparities become far more pronounced. The ratio between the richest and poorest parish reaches 5.5 times, a value far higher than that observed at more aggregated levels. This finding shows that a significant share of territorial heterogeneity is

"hidden" within regions. The geographical pattern is clear: coastal parishes are, on average, wealthier than those in the interior, and even within urban areas there is strong stratification between central and peripheral zones. The map of average income by parish – Figure 1 – shows that 9 of the 10 wealthiest parishes in the country are located in Lisbon, while the poorest are found almost entirely in the interior North.

Significant variation in internal inequality is also observed at the local level. The most unequal parishes are concentrated mainly in metropolitan areas, particularly in Lisbon, where the top 10% frequently capture more than 40% of total income. The least unequal parishes, in contrast, tend to be located in rural areas, with less diversified economic structures. However, there are notable exceptions, such as some parishes in the interior North that combine low average incomes with high levels of inequality.

Despite these disparities, there is robust evidence of territorial convergence over the period. Poorer regions and parishes consistently grew faster than wealthier ones. At the regional level, the North recorded the highest growth (around 12%), while Greater Lisbon posted the lowest (around 6%). This pattern is even more evident at NUTS III level: Tâmega e Sousa, the poorest sub-region, recorded an increase of 15.9%, the highest in the country. Figure 2 illustrates this strong correlation between initial income levels and growth over the period across sub-regions. At the parish level, convergence is even more pronounced.

Formal estimates indicate a convergence speed of approximately 2.0% per year at the regional level and 2.7% at the local level, values that nearly double when structural characteristics are controlled for. However, this convergence occurs primarily through a reduction of absolute distances rather than changes in relative positions. The territorial income hierarchy is extremely persistent. The correlation between income rankings in 2017 and 2022 is near-perfect, both at the regional and parish levels. In practical terms, the territories that were wealthiest at the start of the period remain so at the end.

Another notable finding is the absence of a robust relationship between income levels and inequality. Although a simple positive correlation exists, it disappears once structural characteristics such as education or occupational composition are controlled for. This suggests there is no mechanical link between economic development and inequality — the relationship is mediated by other factors.

Finally, the report's most important finding concerns the nature of inequality in Portugal. A decomposition analysis of the Theil index shows that inequality is predominantly interpersonal rather than territorial: only around 11% of national inequality can be attributed to differences in average income between geographical units, while the vast majority — around 89% — results from inequalities among individuals living in the same parish. This finding reflects a simple but central fact: within any given territory, individuals with very different socioeconomic profiles coexist, from precarious and low-skilled workers to highly qualified professionals and entrepreneurs. Quantitatively, the ratio between top and bottom incomes within a typical parish can reach 16 to 20 times, far exceeding the differences observed between territories.

Even so, the spatial dimension is not irrelevant. Despite explaining a relatively small fraction of the overall level of inequality, territorial convergence has contributed disproportionately to its reduction over the period, accounting for approximately 28% of the observed decline. This suggests that spatial dynamics, although secondary in explaining the level of inequality, play an important role in its recent evolution.

Figure 1 – Average Income by Parish (Period Average 2017–2022)

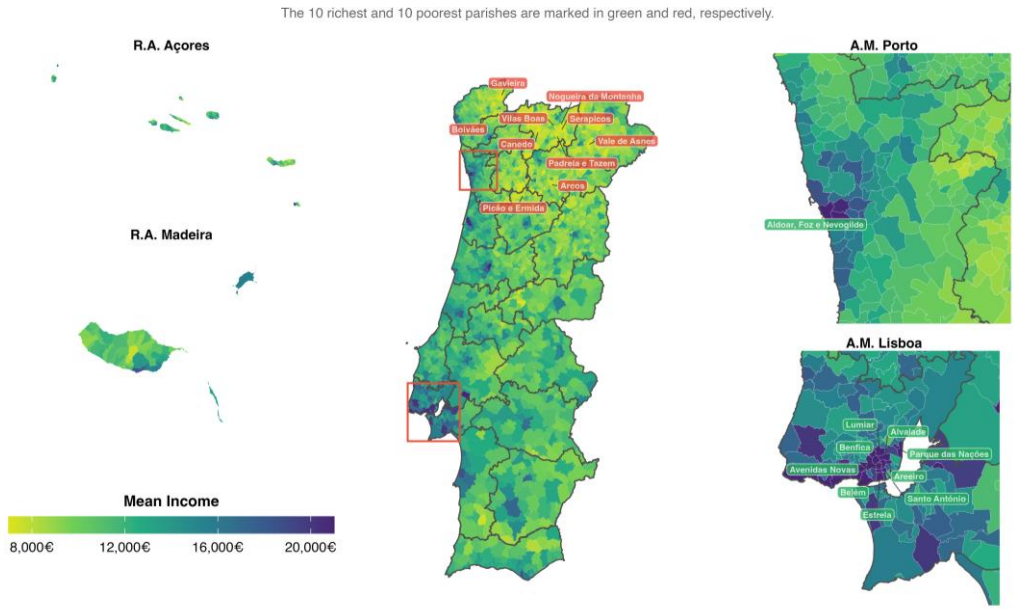
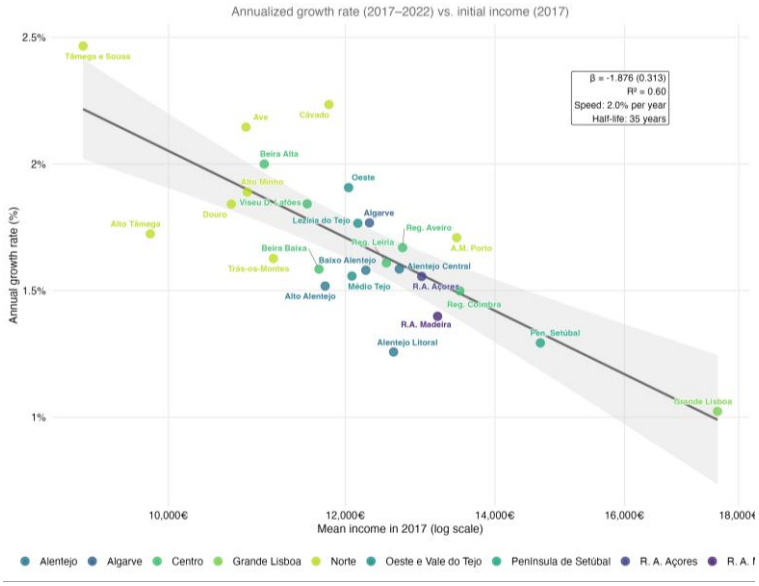


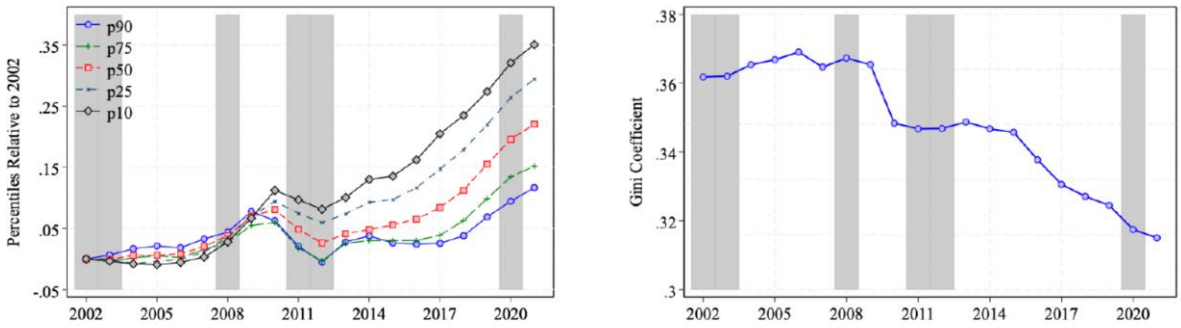
Figure 2 – Regional Convergence in Average Income



Wage Asymmetries

Between 2002 and 2021, real wages grew across all segments of the distribution. However, growth was not uniform: lower-earning workers recorded larger gains than those at the top. The lower percentiles (P10, P25) rose by 35–42 per cent relative to 2002, while the upper percentiles (P75, P90) rose by only 13–16 per cent. Figure 3a illustrates this convergence pattern — the widening gap between the lines shows that the bottom grew roughly twice as fast as the top. This convergence translated into a reduction in inequality as measured by the Gini coefficient (Figure 3b). The trend, however, was not linear: between 2002 and 2006, inequality increased. From 2009 onwards, it reversed in a sustained manner, with the Gini falling year after year until 2021. The gap between the 90th and 10th percentiles narrowed by 16 per cent.

Figure 3 – Evolution of Wage Inequality in Portugal



(a) Earnings percentiles relative to 2002.

(b) Gini coefficient, 2002–2021.

Compression occurred at both tails of the distribution: incomes at the bottom moved closer to the median, as did those at the top. These results hold after removing the effect of age on earnings, confirming that the reduction in inequality is not solely attributable to changes in the age composition of the workforce — it also occurs within age groups.

The pattern is consistent across all regions of mainland Portugal. The five NUTS-2 regions recorded Gini declines of between 0.023 and 0.032 points. Lisbon, the region with the highest inequality, also recorded the largest absolute reduction in dispersion. The North and Centre display more compressed distributions and lower variability over time.

Productivity Asymmetries

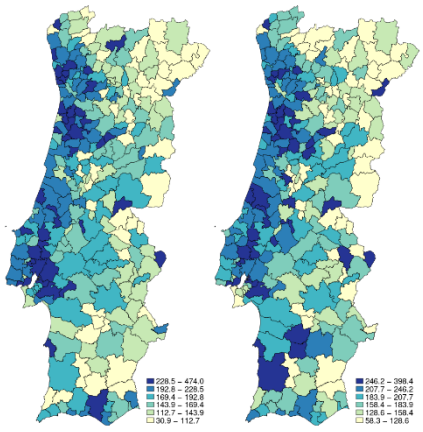
In Portugal, the productivity distribution is strongly right-skewed. The median productivity is substantially below the mean, indicating that most firms operate below their sector average. Between 2007 and 2023, a modest general improvement was observed: the median rose from €17,000 to €19,200 per worker and the mean from €24,600 to €27,800. The years 2022 and 2023 show a more marked positive shift in the distribution.

At the sectoral level, all sectors recorded improvements except transport. Industry and accommodation and food services stand out positively — despite the severe pandemic disruption, they recorded a notable distributional shift. Dispersion across sectors is relatively homogeneous, with greater variability in business services and other sectors.

Regarding firm size, productivity increases with size. Larger firms are systematically more productive, and micro-enterprises account for most of the low-productivity tail over time. Large firms show a stabilisation in the median and a reduction in dispersion, while SMEs display modest but consistent improvements.

Regionally, the Lisbon Metropolitan Area leads in productivity, but also exhibits greater dispersion. By contrast, interior municipalities display lower productivity levels. Municipal-level heterogeneity is significant, and productivity tends to be higher in coastal areas and metropolitan regions, with differences persisting within the same NUTS-II region (Figure 4).

Figure 4 – Heatmap of total productivity in 2007 and 2023, by municipality | In thousands of euros per worker.



A key result from the analysis of productivity differences concerns the decomposition of the sources of productive inequality at the national level. Approximately 78% of gross value added inequality between establishments is explained by differences in their intrinsic productive capacity – management processes, operational efficiency, or workforce composition. The local context (parish and sector characteristics) contributes an additional 6%, while agglomeration externalities – the impact of neighbouring establishments on each firm's output – contribute only 1.4%. This hierarchy is a robust finding: what most differentiates Portuguese firms is what happens within them, not where they are located.

Another significant finding concerns the geographical distribution of agglomeration externalities. At the municipal level, the average quality of agglomeration externalities — that is, the extent to which neighbouring establishments contribute positively to local output — is highly uneven.

The North region has, on average, the highest externalities, indicating that it is the region of Portugal where the surrounding business environment most enhances individual firm productivity.

The Centre region, by contrast, concentrates a greater number of municipalities with low externalities. The Algarve and Alentejo regions host some municipalities with higher externalities, demonstrating potential for business agglomeration in these areas.

Policy Options and Recommendations

Promote continuous monitoring with administrative data. Income records make it possible to track inequality indicators with regional detail on an annual basis. Regular publication of regional dispersion indicators, following internationally comparable methodologies, would strengthen the evidence base available to policy makers.

Assess the role of the minimum wage in reducing asymmetries. The compression of the lower tail of the distribution is consistent with the effect of successive increases in the national minimum wage. A formal evaluation of this relationship would allow the contribution of this policy to inequality reduction to be quantified, and potential employment effects across different regions to be identified.

Foster policies with a regional dimension. Regional differences in income distribution structure are persistent. Lisbon concentrates the greatest inequality and dispersion; the North and Centre have more compressed distributions. Territorial cohesion policies would benefit from taking these differences into account when designing wage and labour market intervention instruments.

Focus public support on the modernisation of productive and management processes. Since nearly 80% of productivity differences stem from factors internal to firms, the most

effective instruments will be those that directly promote organisational and efficiency improvements through subsidised business consulting programmes, digitalisation support, and incentives to adopt modern management practices, with a focus on regions and sectors with the greatest productivity deficit (Alentejo and Algarve in particular).

Align knowledge transfer programmes with the geographical location of firms. The Interface Centres network and the CoLAB network should be expanded and strengthened in regions with lower agglomeration dynamism, encouraging the participation of firms from high value-added sectors in those territories. Knowledge transfer between research institutions and local firms is a privileged vehicle for raising intrinsic productive quality where it is lowest.

Invest in attracting and retaining skilled human capital outside metropolitan areas. The productive quality of firms is inextricably linked to the skills of their workforce. Incentive programmes to promote the mobility of qualified workers to less dynamic regions — such as tax benefit schemes, housing support, and quality public facilities — are a necessary condition for the remaining policies to produce a sustained effect.

Conclusion

Income inequality in Portugal declined significantly between 2017 and 2022, in a context of inclusive growth in which incomes at the bottom of the distribution grew faster than those at the top. Despite this favourable trend, marked territorial asymmetries persist, becoming more evident at more disaggregated geographical levels. Nevertheless, the evidence shows that inequality is predominantly interpersonal — occurring within territories themselves — and that the spatial dimension is more relevant to explaining its evolution than its level.

Wage inequality in Portugal declined consistently and across all regions between 2009 and 2021. The reduction stems from faster wage growth at the bottom of the distribution — a pattern that cannot be explained by changes in workforce composition. Regular monitoring of this evolution, using administrative data and regional disaggregation, is essential to assess the effectiveness of wage and territorial cohesion policies.

Productivity in Portugal exhibits a strongly unequal and persistent distribution, with most firms operating below average and with significant differences associated with size, sector, and location. Although a broad improvement is observed over time, disparities remain high, particularly between coastal and interior areas. The evidence indicates that most of these differences stem from factors internal to firms, underscoring the importance of policies focused on improving efficiency, management, and human capital skills.

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