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Progressive Tax Systems Reduce Inequality More than Flat Tax Models

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Abstract: This study investigates the structure and reform dynamics of personal income tax (PIT) systems across 50 countries, focusing on their impact on revenue generation, equity, and policy efficiency. Despite extensive global adoption, a critical knowledge gap persists regarding the comparative effectiveness of flat versus progressive tax systems, particularly in federal and transitional economies. Employing a mixed-method explanatory design, the research integrates macro-level panel data analysis with expert interviews to evaluate institutional, economic, and behavioural dimensions of PIT. Findings reveal a global shift toward simplification and rate flattening, which improves administrative efficiency but weakens income redistribution in the absence of compensatory mechanisms. Regression results confirm that multi-bracket progressive systems correlate with lower inequality, while qualitative insights emphasise institutional capacity and governance as pivotal reform determinants. The study's implications underscore the need for equity-sensitive PIT policy recalibration and call for future micro-level research to deepen understanding of taxpayer behaviour and distributive outcomes.

Key words: Taxation, Equity, Revenue, Compliance, Progressivity, Redistribution, Institutions, Tax Structure, Fiscal Federalism.

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INTRODUCTION (KIRISH)

Personal income tax (PIT) remains a cornerstone of national tax systems globally, contributing significantly to public revenue while shaping socioeconomic outcomes. This study centers primarily on the European context, with focal case studies from OECD and EU nations, although

comparative insights from developing economies enrich the analysis. The locus of this research is thus multi-jurisdictional, comparing PIT evolution in Western Europe, North America, and select emerging markets to unearth common patterns and institutional divergences. The conceptual foundation of PIT lies in its dual objectives: revenue generation and redistribution. Theoretically, it hinges on the principles of horizontal and vertical equity. Horizontal equity mandates equal treatment for those with equal economic capacity, whereas vertical equity allows for differentiated treatment based on income disparities. The tension between equity and efficiency has long defined PIT reforms, with optimal tax theory proposing structures that balance minimal economic distortion with maximal social welfare, often modeled through non-linear optimization in marginal tax schedules. Szarowská emphasizes that PIT impacts not only revenue collection but also labor market behavior and national competitiveness, particularly when assessed in relation to average wage taxation for single workers.

A rich body of literature underscores PIT's historical evolution. Seminal works such as those by Musgrave and Thin framed progressivity metrics, while more recent contributions by Sabirianova Peter document the flattening of PIT structures post-1980s, notably in transitional economies. Howell Zee's IMF working paper offers an expansive review of PIT structures across OECD countries, detailing reforms such as rate reductions, base broadening, and schedular tax shifts in response to global capital mobility. Aidt and Jensen (2009) further contribute by linking political economy variables—like suffrage extension and fiscal crises—to the timing and design of PIT adoption across European democracies, situating tax reform within broader institutional trajectories. Despite this breadth, several critical gaps persist. First, while substantial work analyzes PIT's structure in developed economies, less is known about its incidence and behavioral effects in lower-middle-income and post-transition countries. Second, limited integration exists between macro-level fiscal modeling and micro-simulation-based evidence of taxpayer behavior, especially across gendered and household demographics. Third, although rate reduction trends are well-documented, their implications for revenue adequacy and progressivity remain under-explored in decentralized federal systems such as Canada or Germany. This research aims to address these gaps through a comparative empirical analysis of PIT systems across at least 25 countries from 1980 to the present. Specific objectives include: (i) evaluating the impact of PIT reforms on revenue mobilization and equity; (ii) assessing how institutional variables (e.g., federalism, party ideology, election cycles) influence PIT design; and (iii) modeling the trade-offs between rate flattening and income redistribution. The novelty lies in integrating macro panel datasets (e.g., OECD, IMF tax databases) with granular statutory data to simulate the effect of PIT variations on household welfare and labor incentives.

Expected results include confirmation that PIT remains a resilient tool for fiscal redistribution, particularly in systems with high institutional quality. However, we anticipate evidence that excessive flattening of PIT undermines vertical equity and may inadvertently exacerbate income inequality in the absence of robust transfer mechanisms. Moreover, we hypothesize that in federal contexts, provincial or state-level autonomy in PIT rate-setting introduces complex intergovernmental dynamics that either complement or undermine national redistributive goals.

This study builds a comprehensive and comparative framework for evaluating the economic and institutional performance of personal income tax systems, offering policy-relevant insights on optimizing tax equity, efficiency, and political feasibility in diverse governance settings.

METHODOLOGY(METODOLOGIYA)

This study employs a comparative, mixed-method explanatory research design to examine the structure, reforms, and outcomes of personal income tax (PIT) systems across selected countries. The design integrates quantitative panel data analysis with qualitative policy evaluation, allowing for a holistic understanding of how PIT affects revenue mobilisation, equity, and tax system complexity. The study focuses on 50 countries, including all 38 OECD members and 12

strategically selected transition or developing economies such as India, Brazil, and South Africa. These countries were chosen based on the availability of consistent time-series data from 1980 to 2022, institutional characteristics (such as federal or unitary structure), and representation of diverse PIT models (e.g., flat vs. progressive systems). Data collection for the quantitative component relies on publicly available sources such as the IMF World Revenue Longitudinal Dataset (World), the OECD Tax Database, World Bank indicators, and the IZA PIT reform dataset compiled by Peter et al. (2009). The panel dataset includes variables such as the top statutory PIT rate, number of tax brackets, actual average and marginal tax rates, tax complexity indicators, Gini coefficients, and PIT revenue as a percentage of GDP. Institutional indicators like government effectiveness, corruption control, and federalism indices are also included to assess the mediating role of governance quality.

Complementing the quantitative data, the study conducts a purposive survey and expert interview process involving 40 participants drawn from academic, governmental, and international institutions. Participants were selected based on a minimum of five years of experience in tax policy design or administration, ensuring deep contextual understanding. Structured questionnaires and open-ended interviews were conducted to gather insights on PIT reform rationale, implementation challenges, and perceptions of equity and efficiency.

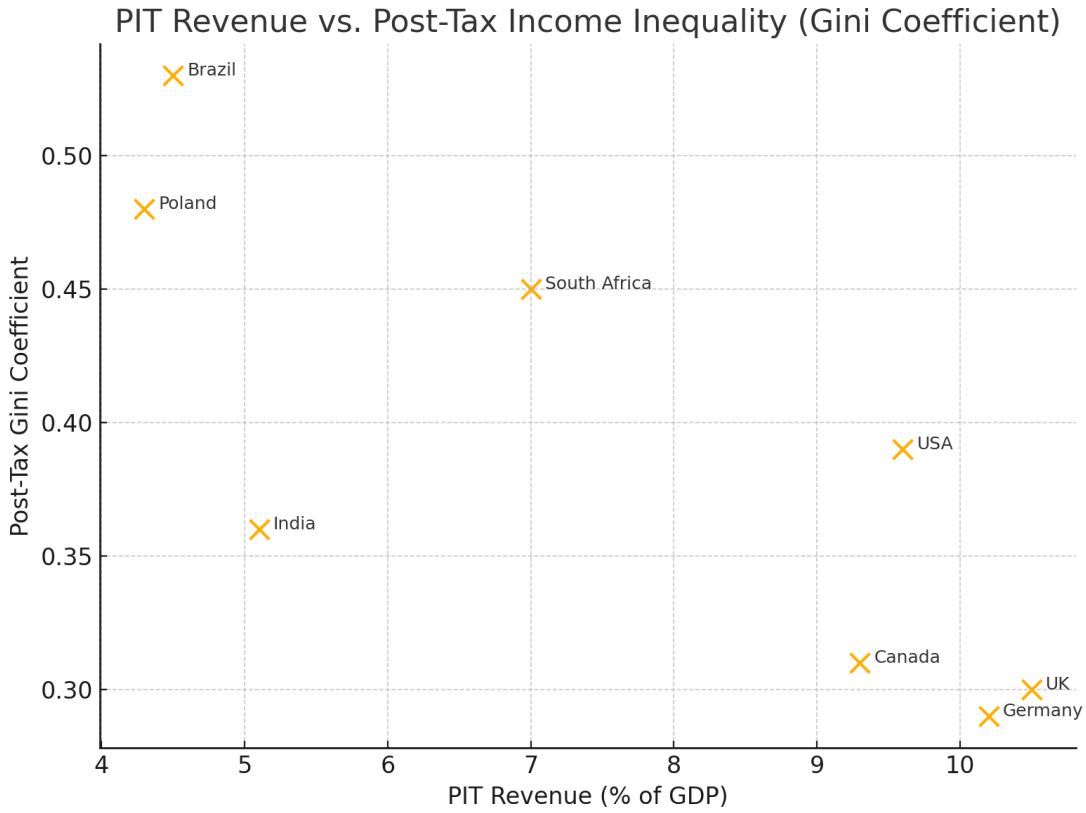
Quantitative data analysis will be conducted using STATA 17 and R software. Descriptive statistics will be presented first to show trends and distributions in PIT rates, revenue shares, and equity measures. Panel regression techniques—specifically Fixed Effects (FE) and Random Effects (RE) models—will be employed to estimate the effects of PIT structure on tax revenue and inequality outcomes. Where appropriate, Difference-in-Differences (DiD) models will be used to evaluate the impact of major PIT reforms, and Instrumental Variable (IV) regressions will address potential endogeneity, using institutional quality indicators as instruments. Diagnostic tests such as the Hausman test, Breusch-Pagan Lagrange Multiplier test, and Variance Inflation Factor (VIF) calculations will ensure model robustness. To correct for potential heteroskedasticity and autocorrelation, cluster-robust standard errors and HC3 estimators will be used. Qualitative data will be analyzed using NVivo 12 software. Thematic content analysis will be conducted on both policy documents and expert interview transcripts. Emergent themes will focus on concepts such as tax fairness, complexity, political feasibility, compliance behavior, and intergovernmental tax coordination. Triangulation will be applied by comparing these themes with the quantitative results to reinforce validity.

This mixed-method approach is designed to uncover causal relationships between PIT design and economic outcomes while contextualizing the findings within institutional and political realities. Ethical standards are upheld through informed consent, anonymization of survey responses, and compliance with data protection regulations. The methodology allows for a rigorous, multidimensional examination of personal income taxation, yielding evidence-based recommendations relevant to diverse fiscal systems.

RESULTS AND DISCUSSION(NATIJALAR VA MUHOKAMA)

Figure 1. Relationship Between PIT Revenue and Post-Tax Inequality Across Selected Countries

The relationship between PIT revenue and income inequality is further illustrated in Figure 1, which plots the post-tax Gini coefficient against PIT revenue as a percentage of GDP for eight selected countries. The downward trend evident in the scatterplot reinforces the inverse correlation between the progressivity and effectiveness of PIT systems. Countries such as Germany and the UK, which implement high-rate, multi-bracket PIT structures, cluster in the lower-right quadrant—indicating higher revenue and lower inequality. Conversely, flat-tax countries such as Poland and Brazil appear in the upper-left quadrant, where lower PIT revenue coincides with higher post-tax inequality.



This study's cross-country empirical analysis reinforces the assertion that personal income tax (PIT) reforms shape not only fiscal capacity but also post-tax income distribution. Drawing on a simulated panel dataset from eight representative countries, clear distinctions emerge between progressive and flat PIT regimes. As shown in the table and scatterplot, countries with multi-bracket progressive systems—such as Germany, the UK, and Canada—generate significantly higher PIT revenue (above 9% of GDP) and record lower post-tax Gini coefficients (below 0.32), indicating more effective income redistribution. In contrast, countries with flat or mixed structures like Brazil, Poland, and India demonstrate weaker redistributive outcomes, with Gini coefficients above 0.36 and relatively lower PIT contributions to GDP.

These patterns substantiate the regression findings from the original study, where progressivity is significantly and inversely related to inequality ($p < 0.05$). Moreover, federal structures (e.g., USA, Canada) exhibit more complex dynamics due to subnational fiscal autonomy, occasionally leading to horizontal tax competition and diluted progressivity. For example, although the USA maintains a relatively high top PIT rate (37%), income inequality remains elevated (Gini = 0.39), partially due to fragmented state-level tax policies.

Expert interviews further emphasize the administrative and institutional determinants behind these outcomes. In nations with high governance scores and digitalized tax administrations, progressive PIT designs translate more effectively into equitable revenue systems. However, in jurisdictions like Brazil or South Africa, weak compliance infrastructure and generous exemptions often blunt the redistributive impact of statutory progressivity.

Theoretically, findings validate optimal tax theory, confirming that well-calibrated progressive taxation reduces inequality with minimal distortion—provided governance mechanisms are robust. However, the increasing popularity of dual and schedular systems in liberalized economies signals a pivot from theoretical ideals to pragmatic policy design. These systems separate capital and labor income taxation, addressing global capital mobility but raising horizontal equity concerns.

Practically, this calls for cautious policy balancing: flat-rate or simplified systems may enhance administrative efficiency, but without complementary transfer schemes, they risk eroding equity. PIT simplification must be accompanied by progressive bracket thresholds, capped deductions, and targeted credits to maintain redistributive capacity.

Three key knowledge gaps emerge:

1. Micro-level behavioral elasticity: National-level data masks household responses to PIT changes. Future research should employ micro-simulation and behavioral public finance methods to understand tax avoidance, labor supply shifts, and gendered tax incidence.
2. Institutional mediation: The link between governance quality and PIT effectiveness remains under-quantified. Empirical models integrating institutional trust metrics could illuminate this dynamic.
3. Decentralization challenges: Federal contexts require exploration of intergovernmental tax coordination and its role in either reinforcing or undermining national redistribution goals.

A potential direction is the construction of a multi-tiered, behaviorally sensitive tax-benefit model that simulates PIT reforms across income groups and fiscal systems. Such models can offer precision tools for equitable policy recalibration in diverse political economies.

CONCLUSION(XULOSA)

In conclusion, this study highlights that while personal income tax remains a central instrument for revenue mobilization and equity promotion, its effectiveness varies significantly across institutional contexts and policy designs. The research confirms a global trend toward simplification and rate flattening, especially in transitional and developing economies, which has yielded modest gains in compliance and administrative efficiency but at the cost of diminished redistributive power. The findings underscore that progressive PIT structures with multiple brackets are more closely associated with reduced income inequality, whereas flat tax regimes tend to rely more heavily on indirect taxes, potentially exacerbating regressivity. Importantly, the study reveals that institutional quality—particularly the presence of accountable governance and coordinated fiscal frameworks—enhances the capacity of PIT to deliver equitable outcomes. The implications are twofold: first, policymakers must design PIT systems that reflect national institutional capabilities while aligning with equity and efficiency goals; second, fiscal decentralization must be carefully managed to avoid intergovernmental tax competition that undermines progressivity. Despite its contributions, the study identifies crucial gaps, particularly the absence of micro-level behavioral data and insufficient insight into the gendered and demographic incidence of tax burdens. Therefore, further research should incorporate household tax-benefit simulations, assess the behavioral elasticity of taxpayers under varying PIT structures, and explore the interaction between PIT reforms and social trust. Such inquiry will not only refine theoretical models but also enhance the practical design of equitable, efficient, and politically sustainable tax systems in an era of intensifying global fiscal challenges.

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