

Financial Globalization and the Welfare State¹

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Abstract

The economic link between globalization and income distribution has been rigorously studied from the perspectives of the international-trade paradigm. However, the international-trade viewpoint does not address the impact of globalization on inequality-reducing redistribution policies. Financial globalization, not much studied in relation to income inequality, has first-order effects on international allocation of capital. Consequently it may trigger tax competition, which is directly related to redistribution policy. To understand a key mechanism which links financial globalization to redistribution policy, this paper develops a stripped-down model, where easing the country access to the world capital markets induces political-economy based policy changes that impact income inequality. We motivate the model's assumptions and predictions with evidence on financial globalization, international tax competition, and changes in the generosity of the welfare state.

I. Introduction

The modern welfare state redistributes income from the working young to the retired old, from the rich to the poor, and from the healthy to the sick. Globalization in the form of trade, migration, and financial flows have implications for the endurance of the welfare state and income inequality. While the role of demography, and migration in supporting fiscal pillars on which the welfare state of an aging economy is positioned has been explored rigorously in the literature, the impact of financial globalization has not been similarly explored.

Financial globalization facilitates reallocation of capital across borders. The increased mobility of capital triggers a race-to-the-bottom tax competition. The consequent erosion in the tax base, especially on capital, is potentially a blow to the fiscal finance backing up the far-reaching redistribution of income by the typical welfare state. Both the ease with which capital can move across national borders, and the implied tax competition which inhibits taxation of domestic capital income, have undesirable effects on the provision of social benefits. Governed by political-economy forces, the welfare state cannot avoid the tough task of downscaling its size by resorting to capital taxes.

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Globalization has a new face. China's emergence as a great economic power has induced a significant shift in the patterns of world trade, with major effects on income inequality in its trade partners. Alongside the consumer benefits of expanded trade there are substantial adjustment costs and distributional consequences for them. Import competition from China, which surged after 2000, was a major force behind both reductions in US manufacturing employment and—through input-output linkages and other general equilibrium channels—weak overall job growth. However that import competition from China did not have large aggregative effects in the United States, but it had substantially different employment repercussions in different commuting zones. The relative reductions of employment were regionally concentrated. The US rise in wage inequality that is, the rise of the college wage premium, is only partly the result of trade globalization; more important factors are technological progress (biased towards skilled labor) and the decline of the power of labor unions that were behind strong industrial wages. China is also a key player in world finance, impacting on all other open capital-market economies. Indeed, several indicators point to a strengthening of China's role as an investor country in recent years. By 2017 China is one of the most important FDI source, and destination, among the economically more advanced economies, such as the US, EU, Hong Kong, South Korea, Taiwan and Singapore. Chinese inward FDI as percentage of GDP has been: 13.7 in 2014, 10.9 in 2015, 12.1 in 2016, and 12.6 in 2017. Chinese outward FDI as percentage of GDP has been: 2.4 in 2014, 9.8 in 2015, 12.1 in 2016, and 12.6 in 2017.

Globalization and income inequality are intertwined through markets and policy. We note that inequality of market income is not the same as inequality of disposable income (after accounting for taxes and transfers). A country's tax-transfer system may have first-order reactions to changes in international conditions. As a consequence, global shocks affect inequality not only directly but also indirectly through induced changes in taxes and transfers. Indeed, the political-economy mechanism, which is behind the market and policy effects of financial globalization on the redistribution by a representative welfare state, is the focus of this inquiry. The paper is organized as follows. Section II provides the background. Section III develops a stripped down model. Section III describes the political-economy policy set up. Section IV presents the financial-globalization consequences, derived from the model for the welfare state and income inequality. Section V concludes.

II. Background and Scope

Globalization and income distribution has been studied mostly from the international-trade paradigm perspective. Stolper and Samuelson (1941), early on, explained how increased international trade with capital-intensive good and labor-intensive good, for labor-abundant and capital-abundant countries, should reduce the relative wage in the capital-abundant country; hence, increasing the income gaps between capital and labor. However, Krugman (2008) points that while standard economic analysis predicts that increased U.S. trade with unskilled labor-abundant countries should reduce the relative wages of U.S. unskilled labor, a slew of empirical studies in the 1990s found only a modest effect. Yeaple (2005) demonstrates that a reduction in variable trade costs prompts more firms to adopt the better technology in the differentiated product sector. The most-able workers among those who operate the inferior technology switch employment to firms who operate the more advanced technology, As a result, the least able workers among those who operated the inferior technology switch employment to the traditional sector. Hence, the wage gap between able and less able workers rises. Helpman (forthcoming), however, assesses that the effects of international trade on skilled-unskilled wage gap are, however, limited.

The recent wave of financial globalization in the world economy got started in earnest in the 1990s, with rising cross-border financial flows among industrial economies and between industrial and developing economies. This was spurred by liberalization of capital controls in many of these countries. It is useful to begin with a standard financial globalization basic benchmark. Complete international financial integration requires that in the long run (when prices adjust to various shocks and markets clear) the following arbitrage equation holds.

$$(1) \quad 1 + r_t^{US} = (1 + r_t^i) \frac{q_{i/US,t+1}}{q_{i/US,t}},$$

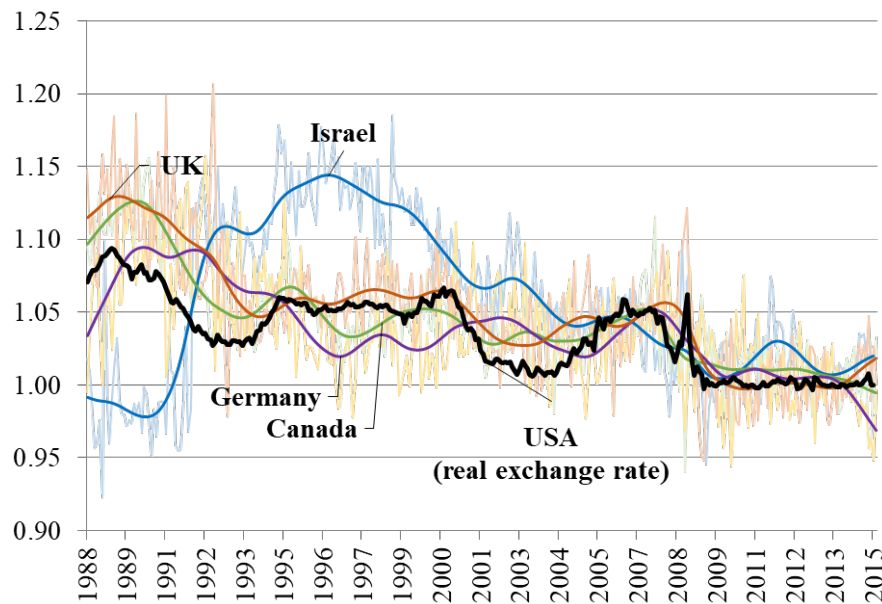
Where US serves as a benchmark, i stands for a country, and q stands for the real exchange rate *vis a vis* the US dollar²:

$$(2) \quad q_{i/US,t}^t = E_{i/US,t} \frac{P_{US,t}}{P_{i,t}},$$

The symbol E stands for the nominal exchange rate, *vis a vis* the US dollar; and P stands for the price level.

To demonstrate trends in this indicator of recent financial globalization, Figure 1 plots the graphs of the real-interest-rate, adjusted for real exchange rate changes, the yields on three-month government bonds for Israel, Canada, Germany and the United Kingdom, and the yields on three-month US government bonds. International financial integration generates more synchronized country-specific yields. Time series are filtered to wash out short-run idiosyncratic fluctuations.

Figure 1: Gross Real Interest Rate Adjusted for Real Exchange Rate Changes (US =1.00)



Note: Series are HP-filtered. Monthly data are shown in the background.

Source: Stats Bureau, FERD, World Bank, Real-exchange-rate adjusted, yields on three-month government bonds for Israel, Canada, Germany and the United Kingdom, and the yields on three-month US government bonds.

² Recall that by the Fisher equation:

$$1 + r_t^{US} = (1 + i_{US}^t) \frac{P_{US,t}}{P_{US,t+1}}, \text{ That is, } (1 + r_t^i) \frac{q_{i/US,t+1}}{q_{i/US,t}} = (1 + i_i^t) \frac{P_{i,t}}{P_{i,t+1}} \frac{q_{i/US,t+1}}{q_{i/US,t}}.$$

Figure 1 demonstrates vividly that in the late 1990s and early 2000s real interest rate, adjusted for real exchange rate of Canada, Germany, Israel, and the United Kingdom converged towards the US real interest rate; implying that their financial markets integrated significantly into the world financial markets.

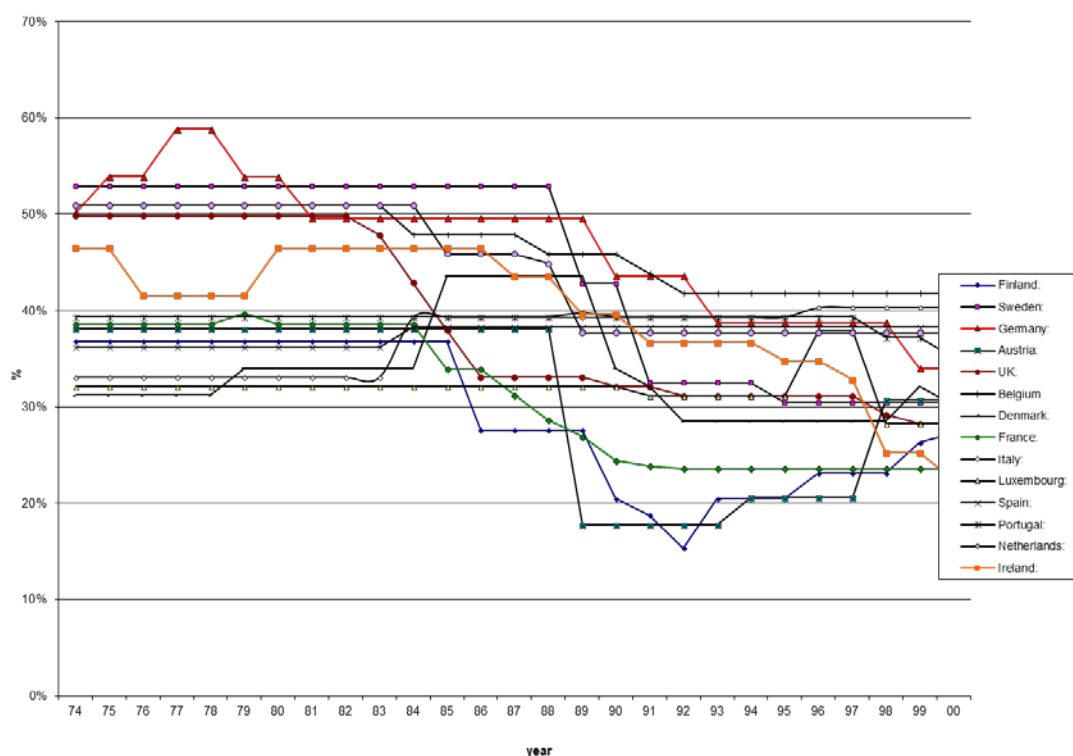
Financial globalization triggers tax competition among countries, and the possibility of a “race to the bottom”. As a result, the tax burden may shift from the highly mobile factors (e.g. capital and top-skilled labor) to the weakly mobile factors (e.g. low-skill labor). This shift has first-order implications for both the functional and the size distribution of income. A country that imposes high tax rates may push mobile factors (especially capital) abroad where the country cannot effectively tax them, eroding its own tax base and lowering domestic economic activity at the same time.³ International tax competition and border tax adjustments of income tax have regained recent public and scholarly attention since the legislation of the 2017 US Tax Bill, centered on corporate tax cut and moving from corporate residence based in the direction of corporate source-based, and curbing profit shifting. It may significantly affect corporate financing and location decisions of both US and European multinational groups.⁴ In consequence, the enhanced competitive pressure could result in an erosion of foreign countries’ tax bases and an associated loss in tax revenue triggering a new wave of international tax competition.⁵

³ The Economist put it succinctly: “Globalization is a tax problem for three reasons. First, firms have more freedom over where to locate. This will make it harder for a country to tax a business much more heavily than its competitors. Second, globalization makes it hard to decide where a company should pay tax, regardless of where it is based. This gives them [the companies] plenty of scope to reduce tax bills by shifting operations around or by crafting transfer-pricing. Third, globalization nibbles away at the edges of taxes on Individuals. It is harder to tax personal income because skilled professional workers are more mobile than they were two decades ago.” (The Economist, 31st May, 1997).

⁴ The 2017 large tax cut, mainly aimed at corporations and business owners. The real logic behind corporate tax cuts is that they’re supposed to lead to higher investment. This investment, in turn, would gradually increase the stock of capital, simultaneously driving down the pretax rate of return on investment and pushing up wages, thanks to a long -term increase in domestic investment, mainly financed by inflows of capital from abroad. The pre-reform US tax system was based on worldwide (residence-based) taxation, under which income was taxed at an equal rate regardless of where profits were earned. Since repatriation of foreign profits triggered high US taxation, US multinationals had an incentive to refrain from bringing home their foreign earnings. In the light of substantial amounts of “trapped earnings” abroad, tax holidays became a strategic tax planning tool of US multinationals. Along with the transition to a territorial international tax system, the reform further provides for a one-time deemed repatriation tax of deferred foreign corporate profits at a rate of 15.5% (cash assets) and 8% (illiquid assets).

⁵ Michael Devereux, Rachel Griffith and Alexander Klemm (2002) analyze the development of taxes on corporate income in EU and G7 countries over the 1980s and the 1990s they establish that tax revenues on profitable investments had fallen. In particular, taxes on income earned by multinational firms are subject to tax competition forces. Additional evidence pertaining to international tax competition for relatively mobile portfolio investments, so that a country with more mobility has lower capital tax rates, is abundant; see empirical support for the hypothesis in Hines (1999), Sorensen (2002), Besley, Griffith and Klemm (2001), Devereux and Griffith (2002), and Lassen and Sorensen (2002), Razin, Sadka, and Nam (2004), and Krautheim and Schmidt-Eisenhor (2011).

Figure 2: Hall-Jorgenson Effective Tax Rates on Corporate Income: Selected EU Countries



Notes: 1) Hall and Jorgenson (1967. Assumptions: Equity finance, $r = 4\%$, inflation rate $\pi = 4\%$, $\delta = 20\%$, Normal tax life = 10 years

2) Countries (from top to bottom): Finland, Sweden, Germany, Austria, UK, Belgium, Denmark, France, Italy, Luxemburg, Spain, Portugal, Netherlands, Ireland.⁶

One can clearly detect in Figure 2 a noticeable downward breakpoint at the end of the 1980s in the wake of the single market launch in mid 1990s. Overall, the mean EU effective corporate tax rate went down from 42% in 1975 to 32% in 2000, and the standard deviation went down from 8% in 1975 to 5.8% in 2000.

III. Globalization and Redistribution: A Model

Financial globalization impacts on income distribution arise in a variety of ways: through its effects on factor prices, the location of investment and savings. We employ a stripped-down

⁶ These calculations are based on the well-known work of Hall and Jorgenson (1967) who introduced the user cost of capital approach; applied to international data by King and Fullerton (1984). Figure 1 follows the formula for the effective tax rate on corporate income (τ_e) as refined by Auerbach (1983):

$$\tau_e = \frac{(r + \delta)(1 - \tau_s z) - (r + \delta)(1 - \tau_s)}{(r + \delta)(1 - \tau_s z) - \delta(1 - \tau_s)}$$

where

ρ – real cost of funds (real rate of return the firm must earn after corporate taxes by the instruction of its shareholders).

δ – physical rate of depreciation (assumed exponential)

τ_s – statutory corporate tax rate

ζ – present value of depreciation allowances.

model which includes the bare elements that will enable us to study key implications of international capital flows and international tax competition on the welfare state. We assume a pure source-based (territorial) taxation. This means that the country does not impose taxes on foreign-source income.⁷

The representative producer equity-finance its activity, and all international capital flows are in the form of equity securities.⁸ We consider a two-period small open economy which responds to exogenously given world interest rate, taxes, and an imperfect accessibility to international capital markets. There is one all-purpose composite good (allowing us to abstract from trade issues) which can serve for both consumption and capital investment. There are two types of factors of production—capital (K) and labor (L). The workers have two types of skills—low (l) and high (h).

The production function is Cobb-Douglas,

$$(3) \quad F(K, L) = AK^\alpha L^{1-\alpha},$$

With constant returns to scale, where $A > 0$ is a total productivity parameter, and α and $1 - \alpha$ are, respectively, the capital and labor shares.

Individuals live for two periods (1, and 2), so that there are essentially two consumption goods: first-period consumption (c_1) and second-period consumption (c_2). Labor is internationally immobile, whereas capital is mobile. Individuals can direct their savings at home and/or abroad.

The total size of the population is normalized to one. Labor supply (L) is measured in efficiency units. We assume that there are γ high-skill individuals, each providing one efficiency unit of labor, and $1 - \gamma$ low-skill individuals, each providing $\rho < 1$ efficiency units of labor. Thus, total labor supply in efficiency units is given by

$$(4) \quad L = \gamma + (1 - \gamma)\rho.$$

Capital is invested in the first period and output accrues in the second period. Factor remunerations are also paid in the second period.

The wage per efficiency units and the domestic return to capital, are given by the marginal productivity conditions:

$$(5) \quad w = (1 - \alpha)(K/L)^\alpha$$

and,

$$(6) \quad 1 + r = \alpha(L/K)^{1-\alpha},$$

⁷ Under the source (territorial) principle of international taxation only income from domestic sources are subject to a tax, whereas foreign-source income is exempt. Under the residence principle, in contrast, income is taxed on a world-wide basis. Razin and Sadka (2017) illustrate diagrammatically the efficiency dis-advantage of the equilibrium under the source principle, compared to the residence equilibrium. Because the consumption possibilities frontier shrinks under the source principle, relative to the frontier under the residence principle, the latter is more efficient. However, tax revenue collection is larger under the former, because of the existence of tax havens and lack of sufficient international tax coordination.

⁸ Evidently, debt flows have a special tax treatment deserve a rigorous separate analysis; they will not be considered here.

where the composite-good price is normalized to one. The specification in equation (4) assumes that capital fully depreciates at the end of the production process.

Capital flows internationally, albeit at some cost- δ per unit.⁹ An individual who invests abroad can thus gain $1 + (1 - t_K^*)r^* - \delta$, where r^* is the world rate of interest, and t_K^* is the tax rate levied abroad under a source-based taxation. In a small open economy context, the three variables, $(t_K^*, r^* \text{ and } \delta)$ play an equivalent role, where the only relevant variable is $(1 - t_K^*)r^* - \delta$. Denoting the domestic tax rate on capital by t_K , arbitrage possibilities yield:

$$(7) \quad 1 + (1 - t_K)r = 1 + (1 - t_K^*)r^* - \delta.$$

For the sake of simplicity, we consider only the case where the equilibrium levels of saving abroad is positive; that is there are capital outflows but not capital inflows.¹⁰

Each high-skill individual is endowed with one unit of the composite good in the first period; a low-skill individual is endowed only with $\theta < 1$ units. Thus, an h-skill individual enjoys both higher initial endowment (“wealth”), and higher labor market skill than the l-skill individual.

We assume Cobb-Douglas preferences for both types of individuals,

$$(8) \quad u = c_1^\beta c_2^{1-\beta} + b^\sigma,$$

Where, $0 < \sigma < 1$.

The welfare state provides a uniform social benefit (b). This social benefit captures the various ingredients that the welfare state accords; such as health services, education, in-kind transfers, etc.¹¹

These preferences yield the following consumption functions:

$$(9) \quad c_{1l} = \frac{\beta[(\rho w(1-t_L) + (1+(1-t_K^*)r^* - \delta)\theta)]}{1+(1-t_K^*)r^* - \delta}$$

$$(10) \quad c_{2l} = (1 - \beta)(\rho w(1 - t_L) + [1 + (1 - t_K^*)r^* - \delta]\theta)$$

⁹ The parameter δ captures (albeit in a mechanic way) a slew of frictions, contractual and informational. Such frictions, which affect the volume and the composition and the volatility of international capital flows, cause deviations from the “law of one price”. As an example, foreign direct investors get more efficient outcomes than foreign portfolio investors because the former have more direct control over management. Thus, they are able to make a better-informed decision of how to run the business. However, the better information mires FDI investors with the “lemons” problem: If the investors’ liquidity dries up, forcing the investors to sell off foreign subsidiaries, market participants would not know whether the subsidiary is liquidated because of the investors’ liquidity problems or because of bad inside information about the profitability of the subsidiary. Consequently, the market will place a discount on assets sold by an FDI investor, who has the inside information, unlike the FPI investor.

¹⁰ Note that marginal changes in the amount of capital which leaves the domestic economy could be positive or negative. Consequently these changes have negative or positive effects on the capital income tax base.

¹¹ We have done various simulations with different specification: (1) social benefit and private consumption are perfect substitutes; (2) The social benefit sub-utility enters the utility function multiplicatively. However, qualitative results are similar for a variety of these specifications.

$$(11) \quad c_{1h} = \frac{\beta((w(1-t_L) + (1+(1-t_K^*)r^* - \delta)))}{1+(1-t_K^*)r^* - \delta}$$

$$(12) \quad c_{2h} = (1 - \beta)(w(1 - t_L) + [1 + (1 - t_K^*)r^* - \delta]).$$

The welfare state employs taxes on labor income (t_L) and capital income (t_K) in the second period and provides the social benefit (b).

We denote by S^* the (positive) aggregate investment abroad, so that the first-period resource constraint is:

$$(13) \quad K + S^* + \gamma c_{1h} + (1 - \gamma)c_{1l} = \gamma + (1 - \gamma)\theta.$$

The second-period resource constraint is:

$$(14) \quad b + \gamma c_{1h} + (1 - \gamma)c_{1l} = F(K, L) + \{1 + (1 - t_K^*)r^* - \delta\}S^*.$$

The government budget constraint is active only in the second period, and its budget constraint is given by

$$(15) \quad b + t_L(\gamma\rho + (1 - \gamma))w + t_K r K.$$

Note that by Walras' Law, the government budget constraint is redundant. (Note also that with source-based taxation, the return on S^* is not taxed at home.)

IV. Redistribution

The policy employed by the welfare state depends on which of the two groups of individuals (l and h) form the majority. That is whether γ is greater or smaller than $1 - \gamma$. The policy variables are t_L , t_K and b . When the low-skill group form the majority (that is, $\gamma < 0.5$), the policy variables are chosen so as to maximize $u_l = c_{1l}^\beta c_{2l}^{1-\beta} + b^\sigma$. And when the high-skill individuals are in the majority (that is, $\gamma > 0.5$), the policy variables are chosen so as to maximize $u_h = c_{1h}^\beta c_{2h}^{1-\beta} + b^\sigma$.

As was already mentioned, taxes are levied, and social benefits are granted only in the second period. Nevertheless, these policy variables are determined, announced, and committed to, already in the first period by the fully informed, and dynamically consistent policy makers.

Our objective is to study how these policies respond to changes in the process of globalization, driven by changes in the parameters t_K^* , r^* , and δ . In particular, the response of b may be viewed as the effect on the generosity of the welfare state, and the effect on t_K captures the international tax competition. We are also interested in the effects on the consumption-equivalent utility levels to gauge the effects of globalization on income distribution, and the benefits from globalization.

For this purpose, and given the multitude forces at play, we resort to numerical simulations.

The parameter values employed in these simulations are as follows: $\beta = 0.6$, $\theta = 0.5$, $\alpha = 0.33$, $\gamma = 0.5$, $\rho = 0.6$, $r^* = 2.4$, $t_K^* = 0.4$, $A = 1$. The share of high skill type in the population (λ) is either 0.6, when they are the majority, or 0.4, where they are in the minority.

V. Inequality Consequences of financial globalization: Model's Predictions

The degree of globalization is captured by the ease of moving capital abroad. Specifically, we assume that there is some cost, δ , per unit of investment abroad. By raising the cost parameter, we raise or lower the intensity of globalization. The incentive for engaging in tax competition is triggered by lowering the foreign tax on capital, t_K^* .¹² Recall that capital flows take only the form of equity capital, not debt.¹³

The degree of globalization is measured by the cost parameter δ . We therefore study the implications of changing δ for the economy in general (e.g. the allocation of capital between domestic and foreign uses), and for the tax burden, its composition, and the generosity of the welfare state, in particular.

As expected, Figures 3 and 4 show that financial globalization (i.e. lowering δ)

Shifts capital from home abroad. This is true no matter whether the high-skill or the low-skill form the majority. Naturally, both capital invested at home and abroad, are higher when the high-skill form the majority, than when the low-skill form the majority.

Figure 3: Capital Invested Domestically

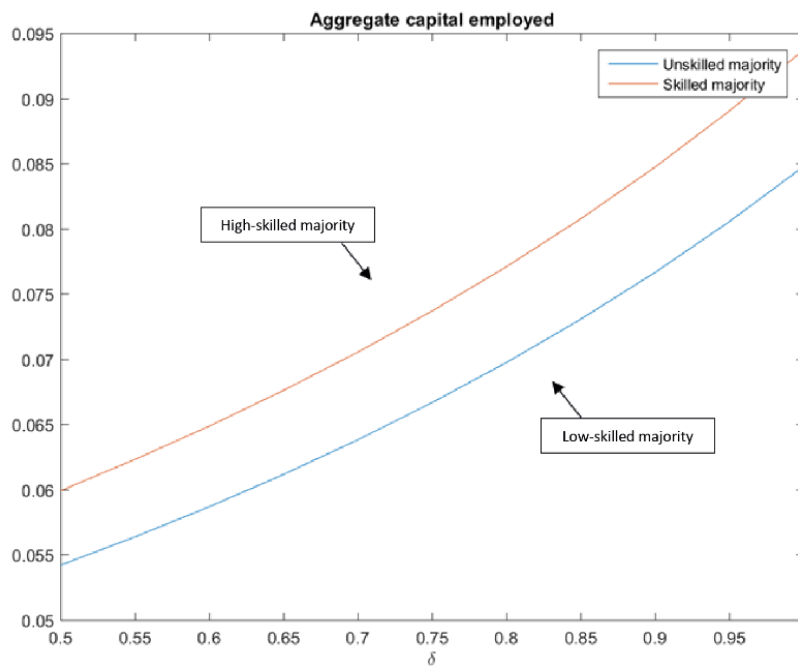
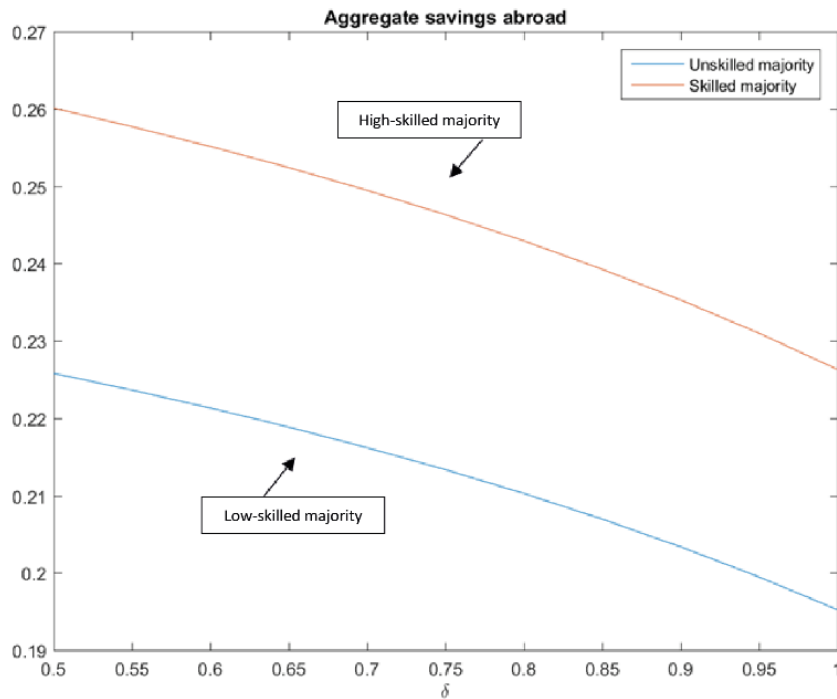


Figure 4: Capital Invested Abroad

¹² Note that δ, r^* , and t_K^* are indistinguishable as the relevant economic parameter is $1 + (1 - t_K^*)r^* - \delta$.

¹³ Although in the absence of uncertainty and information and contractual frictions the model equilibrium configurations is either exclusive capital exports or exclusive capital imports, with frictions equilibrium may include capital exports of assets and capital imports of other assets, all at the same time. Indeed, U.S. is both equity capital exporter and debt capital importer.



Also, as domestic capital falls with financial globalization, the rate of return of domestic capital rises and the wage rate falls.

Turning our attention to the welfare-state system, Figures 5 and 7 show that financial globalization shifts the tax burden away from domestic capital income to labor income. It also lowers the total tax burden, and consequently, the provision of the social benefit (b). These results obtain regardless of which skill type form the majority. Naturally, the tax rates on capital and labor are higher when a low-skill type form the majority, than when the high-skill type forms the majority.

Figure 5: Tax Rate on Domestic Capital Income

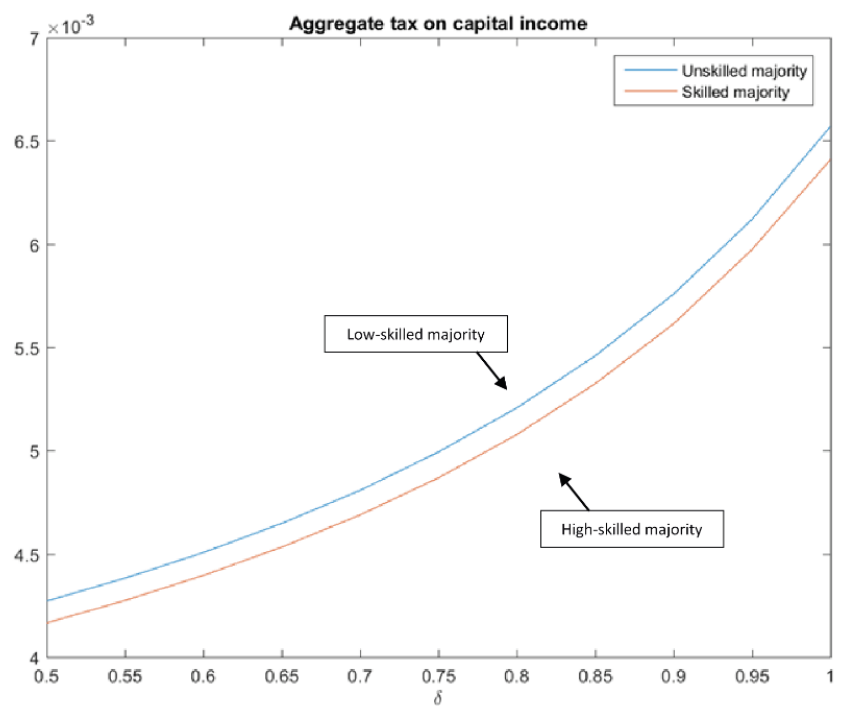


Figure 6: Tax Rate on Labor Income

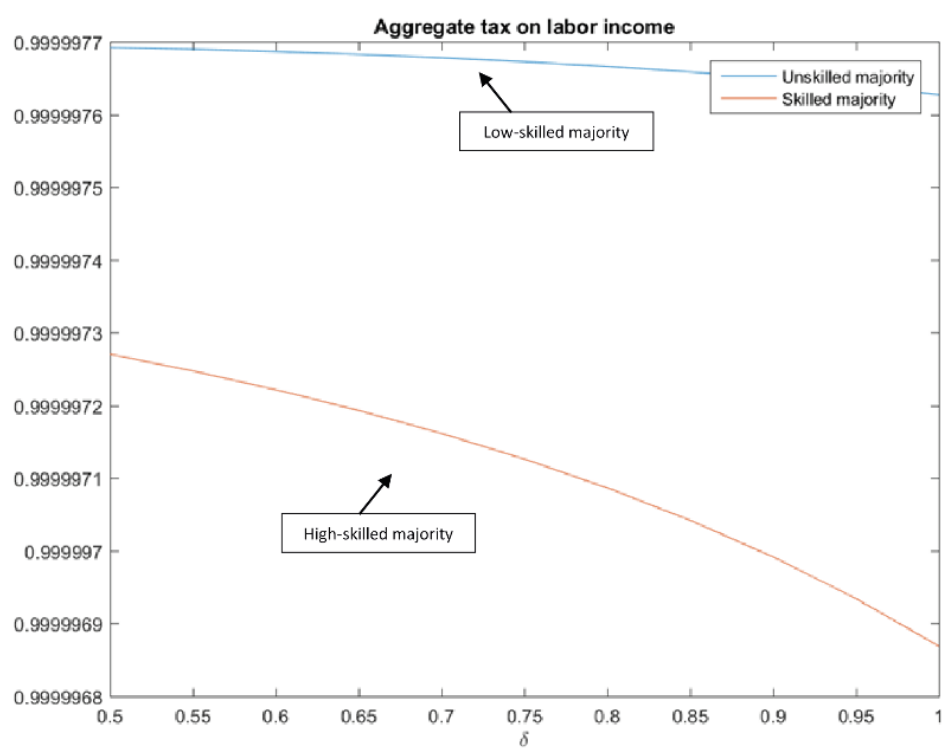
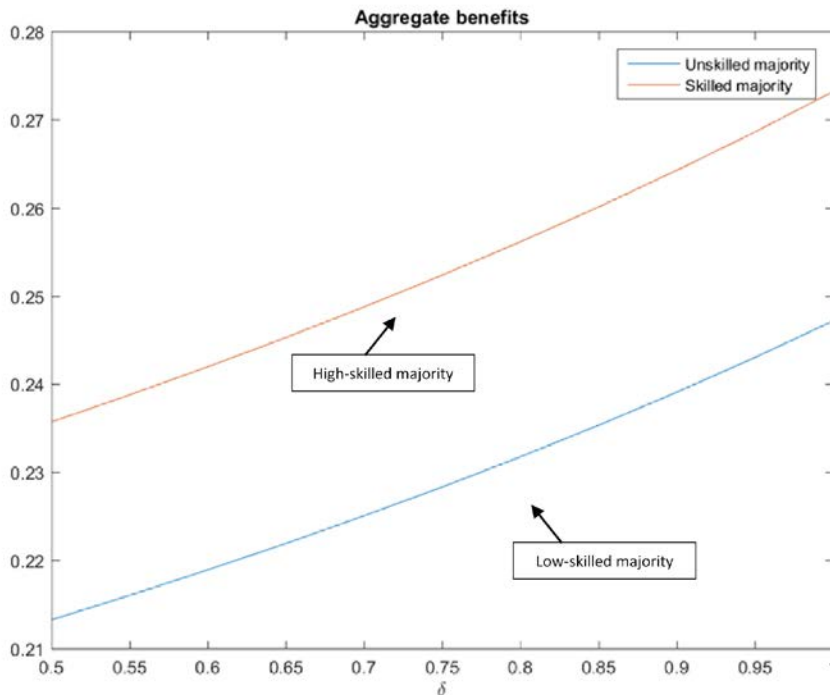


Figure 7: Social Benefit



Comparing the levels of the social benefit under the two regimes, there are two forces at play. On the one hand, the tax rate is higher under a low-skill majority. On the other hand, the economy is less productive when the low-skill labor is the larger component of the labor force. This force reduces the total tax revenues. In our simulations, the second effect dominates. As a result, the social benefit (b) is lower under the low-skill regime.

Turning to who is a winner and who is a loser from financial globalization, note that the issue is far from being a straightforward application of a gains-from-trade argument. For an existence of Pareto improvement to be generated in a multi-consumer economy there it is an essential to have a specific way for the redistribution policy, so as to compensate the losers by taxing the winners. However, our model's redistribution system is constrained by who is the majority, low-skilled or high-skilled.

Figure 8: Utility Level of High-Skill Individuals

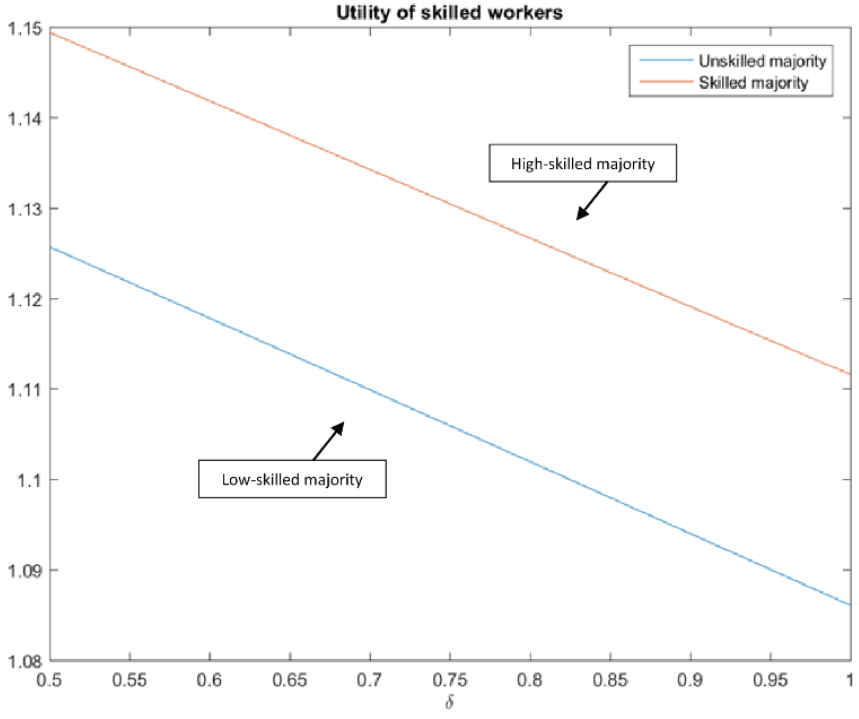
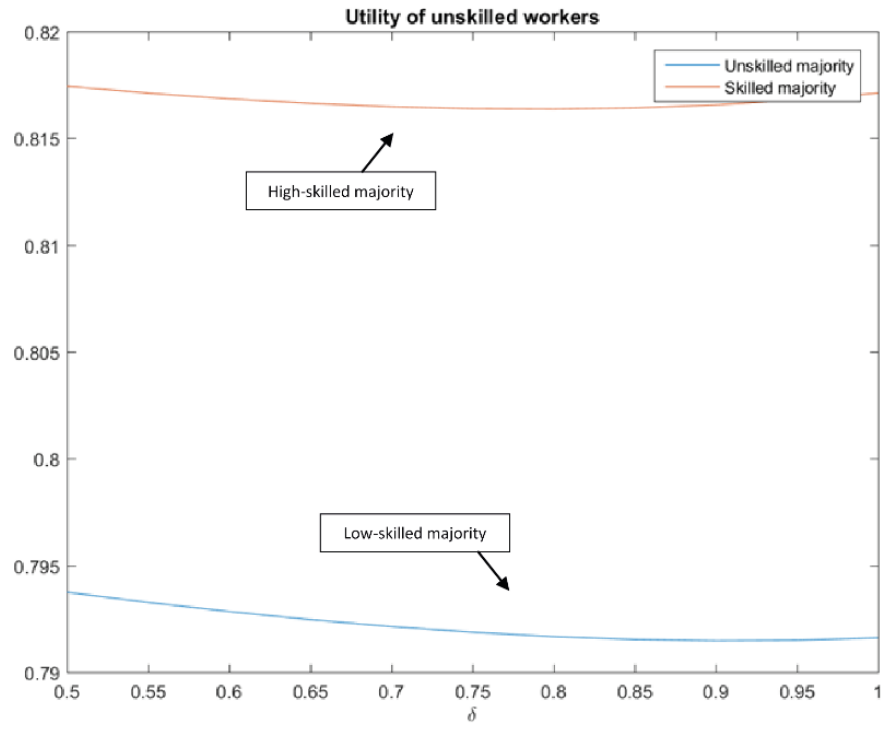


Figure 9: Utility Level of Low-Skill Individuals



A rising tide lifts all boats? Indeed, as Figures 8 and 9 indicate, financial globalization is a Pareto-improvement change. Both skill types, regardless of who form the majority, benefit from financial globalization.¹⁴

It is interesting to find out which skill type benefit more from financial globalization. As utility is ordinal, we cannot just compare whose utility rises by more. Instead, we calculate a sort of consumption equivalent to the utility. Specifically, we ask what a uniform percentage increase in both present and future consumption generates the same increase in ordinal utility as generated by the financial globalization (the change in δ). Formally, denote this percentage increase by $x_i(\delta)$, $i = l, h$. It is defined by

$$(16) \quad [(\bar{c}_{1i})(1 + x_i(\delta))]^\beta [(\bar{c}_{2i})(1 + x_i(\delta))]^{1-\beta} + \bar{b}^\sigma = (\tilde{c}_{1i})^\beta (\tilde{c}_{2i})^{1-\beta} + \tilde{b}^\sigma$$

where “ $\bar{\cdot}$ ” refers to the pre-change in δ and “ $\tilde{\cdot}$ ” refers to the post- change in δ . $i = l, h$.

This yields:

$$(17) \quad 1 + x_i(\delta) = \frac{\tilde{u} - \tilde{b}^\sigma}{\bar{u} - \bar{b}^\sigma}$$

It remains to be shown that the high skill type benefits more that the low skill type from financial globalization. That is, financial globalization, while raises real income of both types, high skill and low skill, it raises at the same time the real income inequality between them.

IV. Conclusion

Capital market globalization affect income distribution in a variety of ways: through its effects on factor process, the location of investment and savings, etc. Furthermore, globalization introduces tax competition among countries, and the possibility of a “race to the bottom”. As a result, the tax burden may shift from the mobile factors (e.g. capital and top-skilled labor) to the weakly mobile factors (e.g. low skill labor). This shift has first-order implications for both the functional and the size distribution of income. A country that imposes high tax rates may push mobile factors (especially capital) abroad where the country cannot effectively tax them, eroding its own tax base and lowering domestic economic activity at the same time. A simple framework to study the issue of tax competition is with the aid of a stylized model with a pure source-based (territorial) taxation. This means that the country does not impose taxes on foreign-source income.¹⁵

¹⁴ Note that we assume perfect substitution between the two labor skill types and complementarity between capital and labor. If there is complementarity- relation between all factors of production, our result is still valid. Krusell et al (2000), who analyzed US data, decompose capital into equipment and structures. They were able to track wage gap for the years 1960 to 1990 and show that capital accumulation explains most of the rise in wage inequality. Note, however that capital which leaves the domestic economy as a result of financial globalization (and escape tax under the source-territorial tax principle domestic taxes), with input-substitutability between low-skilled labor and capital, tends to raise low-skilled wages and raise the domestic return to capital that they own.

¹⁵ International tax competition and border tax adjustments of income tax have received increasing public and scholarly attention since the introduction of the US House Republican tax plan in June 2016, and the legislation of the 2017 US Tax Bill which, on the corporate income side shifts to the source (territorial) taxation principle.

The general rules of making the welfare state less generous are quite straightforward: lower taxes on capital income, and highly mobile labor, and curtail benefits.

In recent years, at the same time that the financial integration of the world economy built up, most of the large industrialized economies have embarked on a track of trimming the generosity of their pension and other welfare-state programs. This is not a coincidence. Financial integration lowers the tax on the mobile factor, capital, and weakens the capital income tax base.

A striking example of financial integration is the 1990s creation of single market in Europe; a rare “Natural Experiment” for effects of international capital market integration on capital income taxation. Evidently, globalization seems to be a catalyst to a major cut in the taxes on corporate income. Both statutory tax rates and effective tax rates converged thanks to tax competition. The statutory tax rates have indeed declined between the 1970s and the 2000s by 11 percentage points (Germany) to 26 percentage points (Ireland). This is a rare example of international tax competition paralleling swift capital market integration.¹⁶

Caminada et al (2010) explored EU welfare-state indicators. Using a variety of indicators of social protection: social expenditures, both at the macro and at the program level, replacement rates of unemployment, and social assistance benefits and poverty indicators.¹⁷ Together, these indicators may provide a relatively broad picture of the evolution of social protection in the EU. Table 1 demonstrates that the initial level of public social expenditure prior to the creation of the EU, has a negative effect on the on EU provision of public social services well after EU has been established. We conjecture that these patterns may have to do, among other things with the globalization forces that were unleashed by the integration of Europe.

¹⁶ The EU permitted free labor mobility among member states, so that union-wide labor market integration was also a driving tax competition force. See Razin and Sadka (2014).

¹⁷ They linearly regress the annual growth rate of several social protection indicators on the initial level of the social protection indicator at the beginning of the period. The coefficient for absolute β -convergence is estimated using an ordinary least square regression model of cross-sectional data. If the coefficient β is negative (positive), we say that there is absolute convergence (divergence) in social protection levels across countries. The higher the value of β , the faster the social protection indicator in the poor region converges toward the level of the rich one. The hypothesis to test is that coefficient β is negative.

Table 1. Convergence of Public Social Expenditures in EU-15 Controlled for Cyclical and Demographic Effects, 1985–2003

	Public Social Expenditures
Initial level public social expenditure 1985 (β)	-0.035**
	(-3.67)
Unemployment rate	0.460*
	(2.95)
Intercept	0.942**
	(4.23)
adj. R ²	0.534

Source: Caminada, Goudswaard, and Van Vliet (2010).

Notes: OLS-regression; t-statistics in parentheses. ** Significant at the 0.01 level; * significant at 0.05 level.

Although we focus in this paper on international capital market effects on inequality, international migration can also have significant impact on income inequality, through its wage-depression effect. Over the longer term, immigrants may shift also the balance of politics among ethnic groups, economic classes, or age groups, which may reshape the distribution of wealth and disposable income. Ottaviano and Peri (2012) calculate the effects of immigration on the wages of native US workers of various skill levels in two steps. In the first step they use labor demand functions to estimate the elasticity of substitution across different groups of workers. In the second step, they use the underlying production structure and the estimated elasticities to calculate the total wage effects of immigration in the long run. In the data-preferred model,¹⁸

They find that there is a small but significant degree of imperfect substitutability between natives and immigrants which, when combined with the other estimated elasticities, implies that in the period from 1990 to 2006 immigration had a small effect on the wages of native workers with no high school degree (between 0.6% and +1.7%). It also had a small positive effect on average native wages (+0.6%) and a substantial negative effect (-6.7%) on wages of previous immigrants in the long run. Immigration has first order effect on redistribution policy Razin (2018) and Razin and Sadka (2005, 2018).address the long term impact on income inequality, and redistribution policy,

¹⁸ Ottaviano and Peri (2012) emphasize that a production function framework is needed to combine own-group effects with cross-group effects in order to obtain the total wage effects for each native group. In order to obtain a parsimonious representation of elasticities that can be estimated with available data, They adopt alternative nested-CES models and let the data select the preferred specification. New to this paper is the estimate of the substitutability between natives and immigrants of similar education and experience levels.

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