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WELFARE-STATE REMEDY TO GLOBALIZATION AND AGING FORCES

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ABSTRACT

Globalization, in the form of trade, migration, and financial flows, is expected typically to increase income inequality. However, the welfare state is revealed to spread the gains from financial globalization to many income groups, thereby reducing income inequality. Welfare–state policy also regulates skill mix and volume of immigration through the political process, so as to serve as a shield against adverse fiscal effects of aging of the population, thereby diminishing income inequality.

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1. Introduction

The modern welfare state redistributes income from the working young to the retired old, from the rich to the poor, etc. Redistribution is a way for sharing gains from trade across many income groups. Financial globalization generates international tax competition. Both the ease with each 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.

With the aging of the population in the advanced economies, the proportion of people receiving social security and health care have increased. These social benefits are by far the largest component of transfers. Immigration is key in many instances for keeping these social services. Immigration enriches the workforce, allowing for a more finely graded specialization that raises average productivity, and the living standards. Diverse workforce in skill and age structure is likely to enhance productivity, especially in industries, and business units where success depends on specific knowledge, such as computing, healthcare, and finance. Thus, the aging welfare-state - a common contemporary phenomenon in many industrial countries- calls for young and high skill immigrants for its survival. Indeed, there are several problems with the argument that migration is always a boon to all. One is that almost any major economic event like a large-scale immigration has far-reaching distributional effects, just like a large cut in trade barriers, or financial liberalization. Second, there are the short-term and long term fiscal implications: fiscal burden arising from low-skill-poor immigrants; or fiscal gain from high-skill immigrants, etc. However, the inflow of immigrants is to a large extent controlled by voters, who also help determine the scope and size of the welfare state.

The paper addresses the effects of two forces, globalization and the aging of the population on the scope and size of the welfare state, and how the welfare state help mitigating the effects of these forces on income inequality.

We organize the paper as follows. Section 2 surveys the redistributive effects of globalization and international tax completion on the welfare state system, as indicated by empirical regularities. Section 3 surveys the historical interactions between the welfare state and immigration. Section 4 develops a theory for the effects of financial globalization on the welfare state and the role of the welfare state in distributing "gains from trade" to many income groups. Section 5 analyzes two hypotheses concerning the interaction of the welfare state and immigration: the "welfare magnet" and the "fiscal burden" hypotheses. Section 6 surveys recent developments aging of the population in advanced economies. Section 7 analyze the ways migration's skill mix and the tax-transfer system are determined to resolve intra- and inter-generational political economic conflicts. The analysis highlights the role of immigration policies on the survival of the welfare state. Section 8 concludes.

1. Globalization Forces and the welfare state

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. Globalization and income distribution has been studied mostly from the international- trade paradigm perspective. 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.

Stolper and Samuelson (1941), early on, explained how increased trade in the world economy, in capital-intensive good and labor-intensive goods, among countries which are different in their labor and capital abundance, should reduce the relative wage, and raise the return on capital, for

the capital-abundant country. Hence, international trade widens 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.

Much of international trade is however intra-industry, and intra-(multinational) firms. In this context, 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.

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.2 Although it certainly had substantially different employment repercussions in different commuting zones, import competition from China did not have large aggregative effects in the United States; the relative reductions of e Helpman (2018), however, , concludes that the effects of international trade on skilled-unskilled wage gap are rather limited .employment were regionally concentrated.

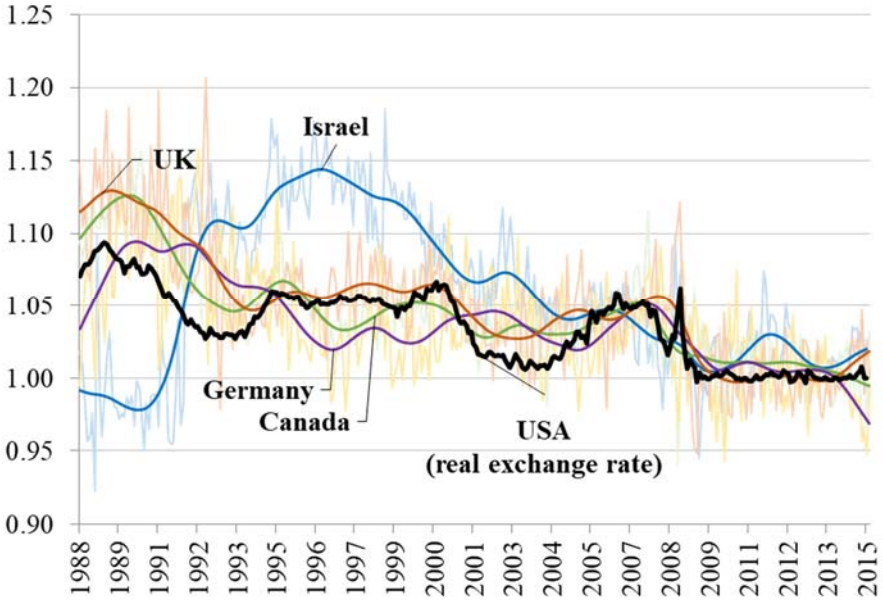
[2] Author et al (2013) analyze the effect of rising Chinese import competition between 1990 and 2007 on US local labor markets, exploiting cross-market variation in import exposure stemming from initial differences in industry specialization and instrumenting for US imports using changes in Chinese imports by other high-income countries. They demonstrated that the rising imports cause higher unemployment, lower labor force participation, and reduced wages in local labor markets that house import-competing manufacturing industries.

However, in general trade globalization interacts weakly with redistributive policies. In contrast, financial globalization directly impacts on the welfare state system (see section 3).

Recent events changed the globalization patterns that emerged forcefully at the end of World War II. 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 easing capital controls in many of these countries. Open-door policies in East Asia transformed the world capital market. .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 (see UNCTAD (2017))

The recent cross-country convergence in rates of returns are illustrated in Figure 1. The figure shows vividly that in the late 1990s and early 2000s the real interest rates, adjusted for the 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.

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.

Sources: Razin (2017), 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.

Financial globalization triggers tax competition among countries, and the possibility of "race to the bottom". The 2017 US Tax Bill, centered on corporate tax cut, enhances competitive pressure that 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.3

[3] **T**he Economist (1997) put this succinctly:

The creation of a single financial market in Europe triggered intensive tax competition.4 Figure 2 detects a 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.

A striking example of financial integration is the 1990s creation of single market in Europe; it is a rare "Natural Experiment" for identifying effects of international capital market integration on capital income taxation. Evidently, globalization seems to be a catalyst to a major cut in the taxes

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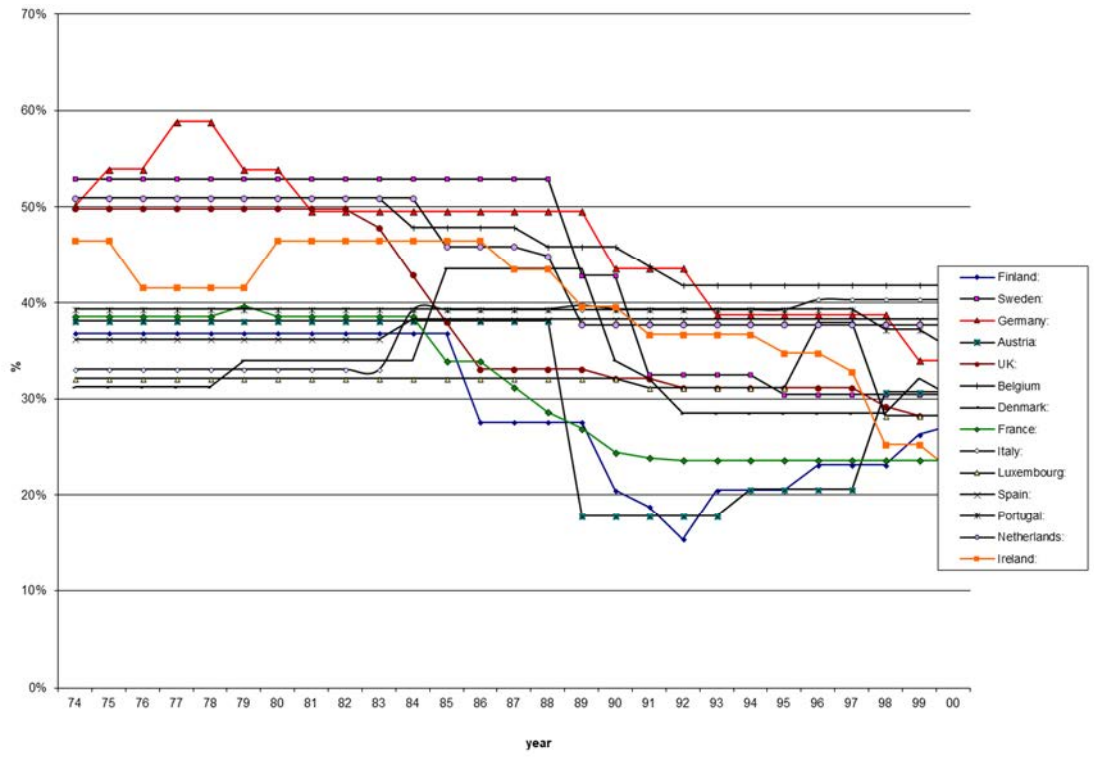
"Globalization is a tax problem for three reasons. First, firms have more freedom over where to locate. This will make it harder for a country to tax [a business] much more heavily than its competitors. Second, globalization makes it hard to decide where a company should pay tax, regardless of where 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."

[4] 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 empirical analysis bring 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).

on corporate income. Both statutory tax rates and effective tax rates converged to a great extent because of 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 a rare example of international tax competition paralleling swift capital market integration. Figure 2 demonstrates the cross-country tax convergence that took place before and after the launch of the EU.

Figure 2: Hall-Jorgenson Effective Tax Rates on Corporate Income: Selected EU Countries5



Notes: 1) Hall and Jorgenson (1967). Assumptions: Equity finance, borrowing rate = 4 %, inflation rate π = 4 %, depreciation rate = 20 %, Normal tax life = 10 years

[5] See Auerbach (1983) and King and Fullerton (1984) for comprehensive empirical application of effective corporate taxation to data.

2) Countries (from top to bottom): Finland, Sweden, Germany, Austria, UK, Belgium Denmark, France, Italy, Luxemburg, Spain, Portugal, Netherlands, Ireland. Source: Razin et al (2005).

The effects of the establishment of the EU on the welfare state system are particularly significant. Caminada et al (2010) explored EU welfare-state indicators. They employed 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.6 Together, these indicators indicate a relatively broad picture of the evolution of social protection in the EU. Convergence regressions in 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.

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

[6] 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 null hypothesis of the test is that coefficient β is negative.

		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. R2		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.

3. **Migration and the Welfare State: History**

Migrants from Europe (the Old World) formed the United States (the New World). Naturally, migration to this new world was not restricted. Note that at this point the redistribution by the federal and state governments was almost nil.[7] Mass migration to the United States accelerated starting in 1840 and peaked in the eve of World War 1. Migration amounted to about 300,000 migrants a year in the mid-19th century. It peaked to about 3 million a year in the years before WWI. WWI signaled the end of free migration worldwide. The League of Nations formed after WWI failed to provide any support for international migration. Many countries, especially the British Empire, insisted on their rights to limit migration, against the desire of countries such China, Japan, and India who were all in favor of labor mobility. The 19th Amendment to the **U.S.** Constitution granted American women the right to vote, a right known as *women's suffrage*, and was ratified on August 18, 1920. In general, changes in institutional arrangements regarding voting rights can produce sudden and significant changes in the relative income position of the decisive voter.[8] A series of migration restricting Acts in the U.S. introduced after WWI. Migration in the U.S. fell to mere 50,000 a year in the 1930's; during the Great Depression. The 1917 Immigration Act excluded Asian immigration. The 1921 Emergency Quota Act limited migration to 350,000 a year. The 1924 Johnson-Reed Act cut the quota to 150,000 a year. Following the Great Depression the US gradually cut the quota to 50,000; see Goldin et al (2011). More recently, the United States tilted its migration policy in favor of skilled migrants. The 1990 U.S. Immigration Act inversed the number of temporary visas to highly skilled workers.[9] In addition,

[7] Milton Friedman is widely quoted for having stated that free immigration is simply incompatible with a welfare state.

[8] Meltzer and Richard (1983), using U.S. time-series data for the periods 1937 and 1946–76, reported evidence that growth in governmental outlays for many redistribution policy items was due, at least in part, to a decline in median income relative to mean income.

[9] Blau and Mackie (2017) write: "More than 40 million people living the United States were born in other countries, and almost an equal number have at least one foreign-born parent.

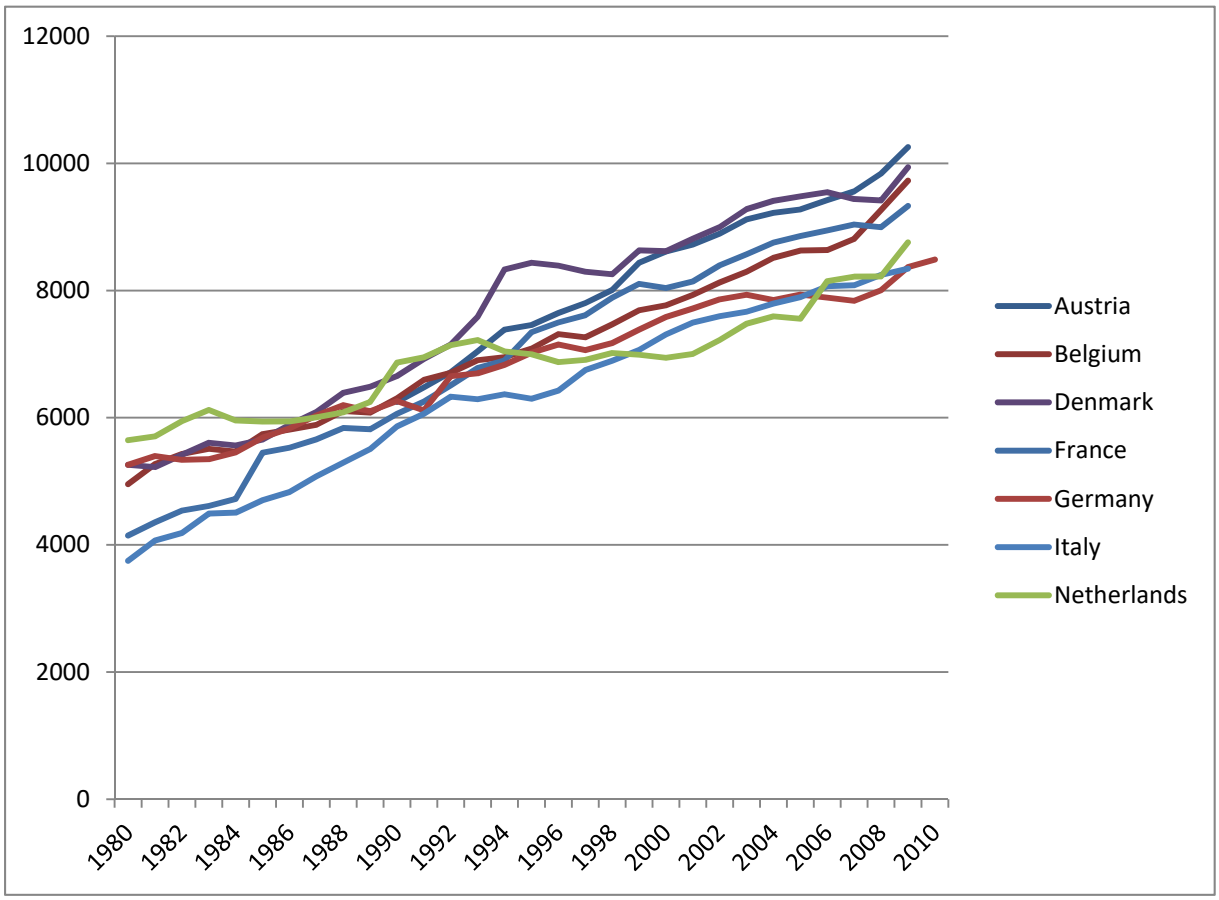
the United States universities and research centers significantly funded directly and indirectly by the U.S. federal and state governments, attracted talented researchers from all over the world. Many of them remained in the U.S. after completing their original term of education, training or research. Most of them became citizens. By the mid -1990s, 30% of documented immigrants to the U.S. were highly skilled.

Comparing the differences between Europe and the US regarding the evolving path of creating the welfare state redistribution policy is instructive. Recall that the birth of the welfare state in Europe goes back to Bismarck Germany in the late 19th century. Later, following the 20th century's two world wars, the European countries provided the world with their own model of the welfare state. Forming the European Economic Community, and later the European Union (EU), allows for free migration with the union. The removal of barriers to the mobility within the EU, in the framework of the European Single Market, coincided with increased restrictions applied to the immigration from non-EU countries. EU member states retained their sovereignty on non-EU immigration policy. The U.S. formed its economic union as early as the late 18th century.

Social expenditure per capita are 7583 USD in Germany, 8040 USD in France, 8668 USD in Sweden, but only 5838 USD in the U.S. (all figures are expressed in Purchasing Power Parity 2000 USD). These differences vary across the years but the pattern (i) and (ii) above remain. The generosity of the European welfare states exceed that of the US; see Figure 9.

Together, the first generation (foreign born) and second generation (children of the foreign born) comprise almost one in four Americans."

Figure 3: Social Expenditures per capita in the U.S. and selected EU countries, 1980-2010



Notes:

(1) Constant PPP 2000 prices

(2) Public and mandatory private social expenditures

(3) Source: OECD library

The removal of barriers to the mobility within the EU, in the framework of the European Single Market, coincided with increased restrictions to the immigration from non-EU countries. EU member states were the ones who invoke the latter restrictions, as they retained their sovereignty on non-EU immigration policy. The collapse of the Soviet Bloc and the following enlargement of

the EU to include Central and East European states brought additional migrants to the core-EU countries. Overall, and unlike the U.S. migration, the European migration exhibit significant bias toward low-skill migrants (see Boeri *et al* (2002) and Boeri (2010)).

The core EU member states have remarkably more generous welfare state than their counterparts in the US. See Figure 1.

Table 2 compares the stocks of migrants, by educational attendance, between the EU 15 and the U.S. Indeed, we can see that more than 40% of the stock of migrants in the U.S. are with tertiary education, whereas the corresponding figure for the EU-15 is less than 25%. Similarly, about 48-59% of the stock of migrants in the EU-15 have only primary education, whereas the corresponding figures for the U.S. are only 22-26%.[10]

Table 2: The Stocks of Migrants, by Education- Level, Attendance, U.S. and the EU 15, 1990 and 2000.

Education-Level	EU-15		U.S.	
(By Percentage of Total)	1990	2000	1990	2000
Primary	59	48	26	22

[10] See Razin and Sadka (2016) for a comparison of the US and the EU migration-redistributive policies, based on differences in the federal-fiscal systems.

Secondary	24	28	31	36
Tertiary	18	24	43	24
	100	100	100	100

Source: International Organization for Migration (IOM) and OECD.

Data from the European Household Survey Panel reveals that in EU countries with high education and income levels, such as Denmark, France, Germany, and the Netherlands, education levels of non-EU foreigners is significantly below that of the native-born. The average skill-composition of non-EU foreigners is well below that EU individual who moved from one EU-country to reside in another EU country. United States universities and research centers significantly funded directly and indirectly by the U.S. federal and state governments, attracted talented researchers from all over the world. Many of them remained in the U.S. after completing their original term of education, training or research. Most of them became citizens. By the mid of 1990s, 30% of documented immigrants to the U.S. were highly skilled.

4. The Role of the Welfare State in the presence of Globalization: Theory

To put together financial globalization, tax competition and the welfare state redistributive system in a coherent analytical framework, and examine interactions among them, Razin and Sadka (2018) develop a two-period, one-good, and small-open-economy model.[11] The economy responds to exogenously given world interest rate, taxes, imperfect accessibility to international capital markets and source-based taxation. There are two income groups: low-skilled-poor individuals and the high- skilled-rich individuals. The welfare state policy variables (taxes and social benefits) are determined through majority voting. The welfare state provides a uniform social benefit, financed by taxes on labor and capital income. The social benefit variable captures the various ingredients that the welfare state accords, such as: health services, education, in-kind transfers, etc. Domestic taxes on labor income and capital income are proportional. The degree of globalization is captured by a measure of ease of moving capital abroad. Specifically, we assume that there is some cost, δ, per unit of investment abroad. Raising the cost parameter, would raise or lower the intensity of globalization. Incentives for tax competition are triggered by lowering the foreign tax on capital.

[11] See Appendix 1 for details of the model.

The model predicts, as intuition suggests, that financial globalization shifts capital from home abroad. 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. In addition, triggered by financial globalization, the stock of domestic capital shrinks, the rate of return of domestic capital rises, and the wage rate falls. Furthermore, financial globalization shifts the tax burden away from the mobile factor, domestic capital to the immobile factor, labor. However, the total tax burden becomes smaller, and consequently, the provision of the social benefits per capita (b) are reduced. 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. In what follows we focus on the model's predictions regarding individual utility levels.

4.1 Financial globalization when the welfare state system does not exists

To highlight the key role of the welfare state in spreading the economy-wide globalization gains to all income groups (the unskilled-poor individuals and the skilled-rich individuals), we consider in this sub-section the extreme case where the welfare state does not exist (that is, t_L, t_K and b are all set equal to zero).

Figure 4: Financial Globalization without welfare state: utility of the high skill type

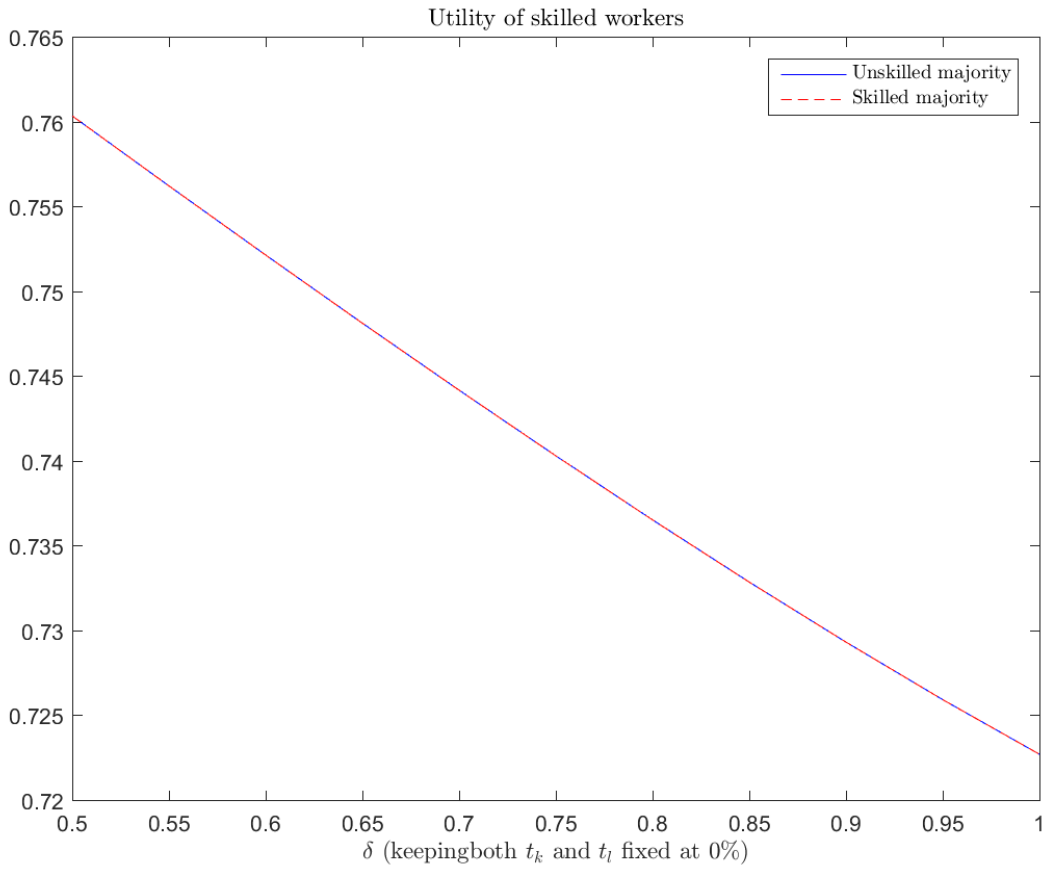


Figure 5: Financial Globalization without welfare state: utility of the low high skill type

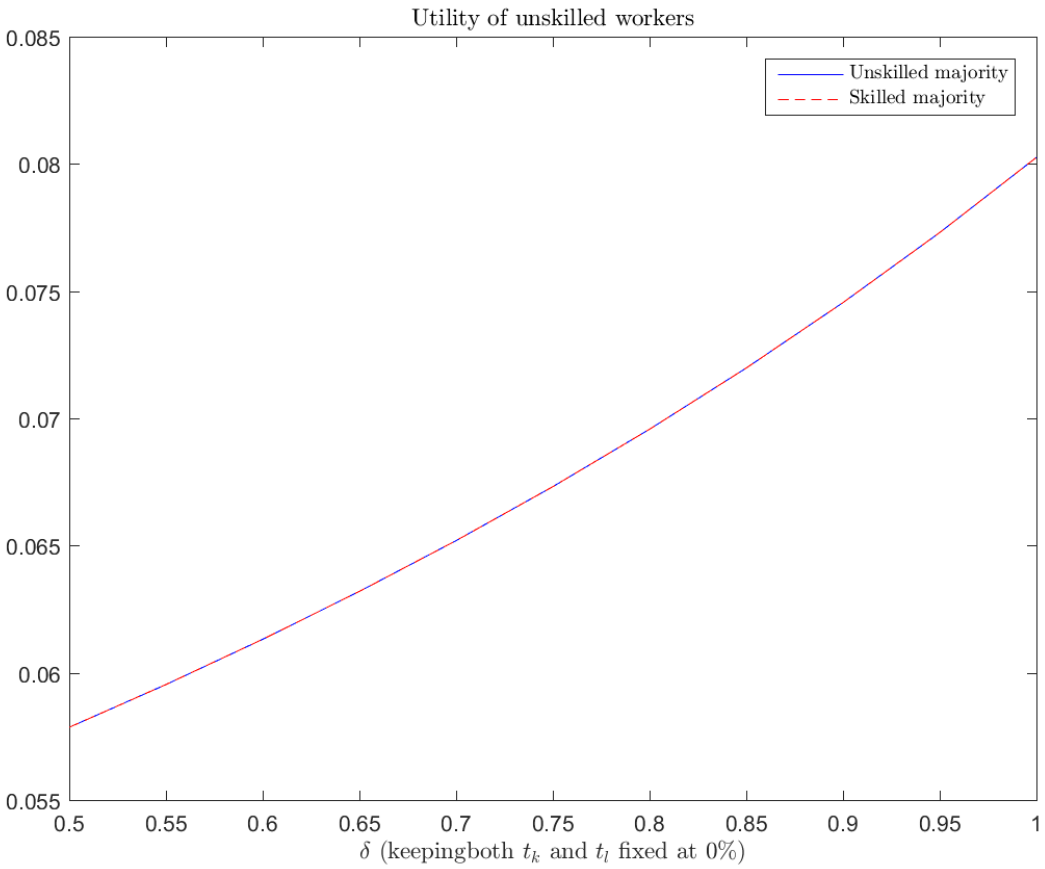
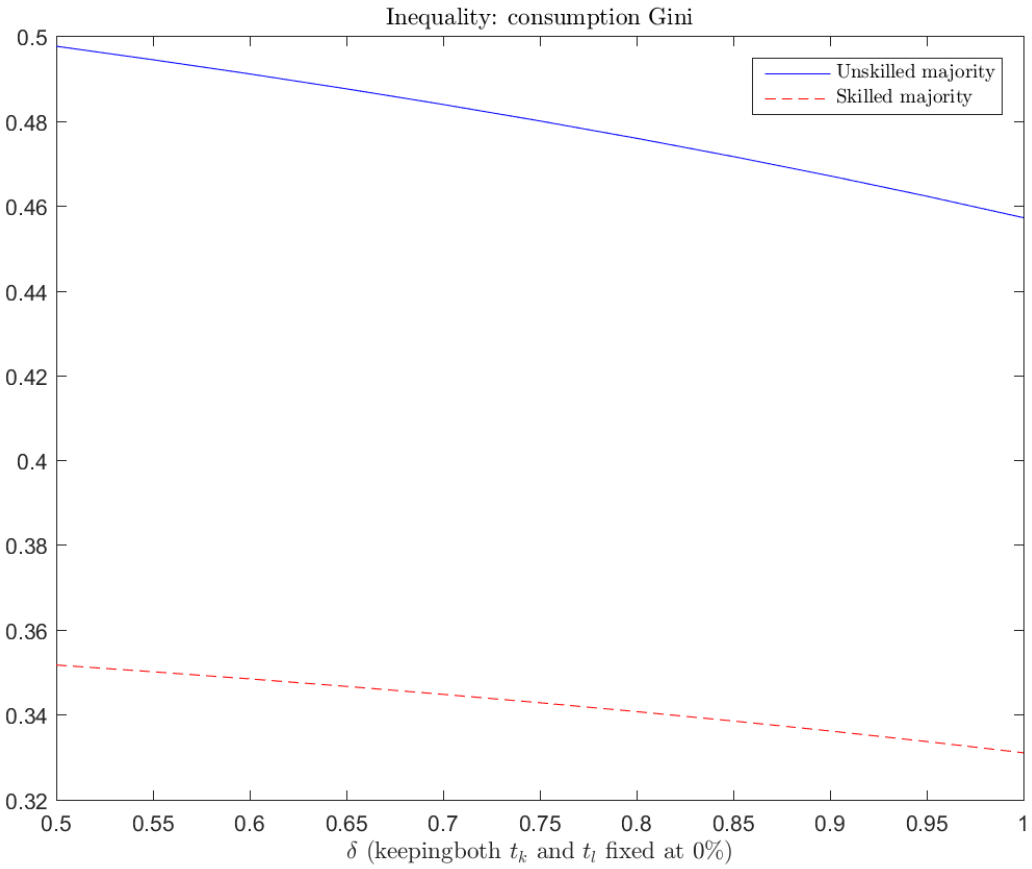

Utility of unskilled workers
Unskilled majority
Skilled majority
0.085
0.08
0.075
0.07
0.065
0.06
0.055
0.5
0.55
0.6
0.65
0.7
0.75
0.8
0.85
0.9
0.95
1
δ (keepingboth t_k and t_l fixed at 0%)

Figure 6: Financial Globalization without welfare state: consumption-based Gini coefficient

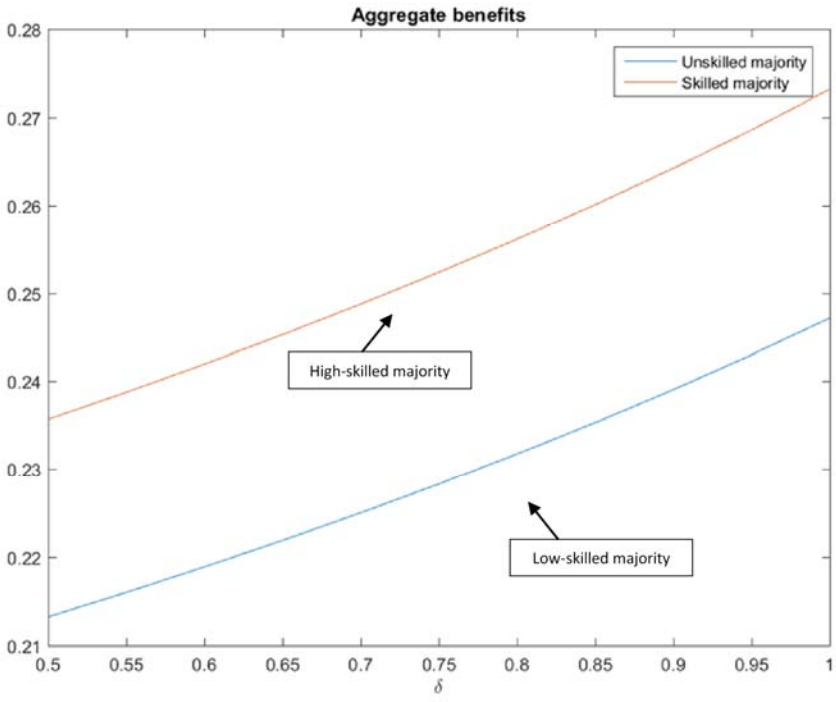


Figures 4-6 demonstrate that in the absence of redistribution, the consequences of the financial globalization are: (i) high skill-rich individual gain; (ii) low-skill poor lose. Consequently, real income inequality worsens.

4.2 The "gains from trade" role of the welfare state

We now bring back the welfare state into the analysis. The welfare state tax-and-transfer policy is politically governed by the self-interest majority. That is, t_L, t_K and b (the labor and capital income tax rates, and the social benefit, respectively) are all endogenously determined. The major issue is how the economy-wide globalization gains spread to all income groups (the low-skilled-poor individuals and the high-skilled-rich individuals) when the tax-transfer system is determined by the majority.

Figure 7: Social Benefits per capita



Comparing the levels of the social benefit under the two regimes in Figure 6, 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.

Does a rising tide lifts all boats? Note that for financial globalization to generate a Pareto improvement in a multi-consumer economy it is 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

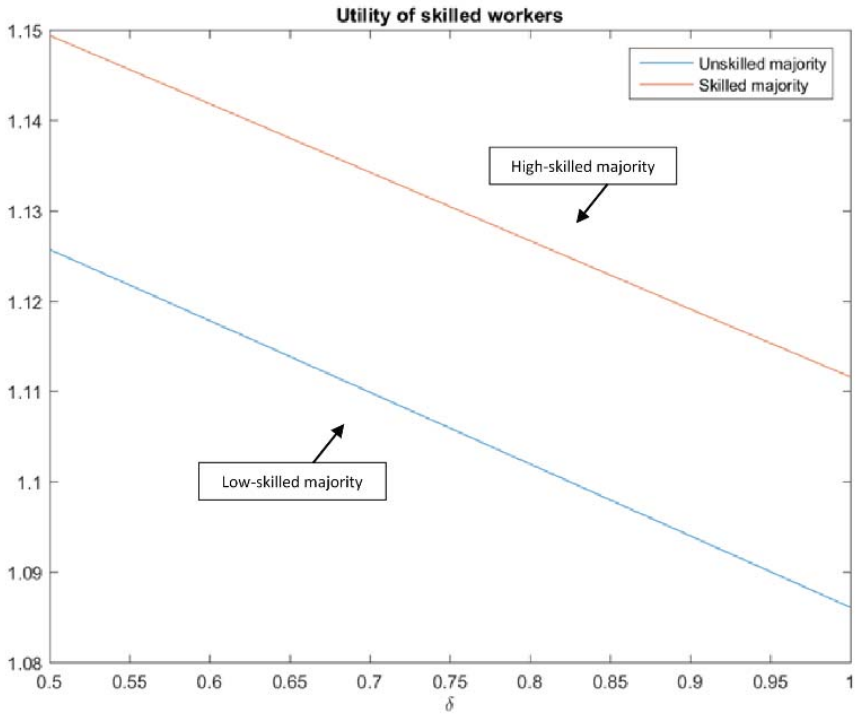
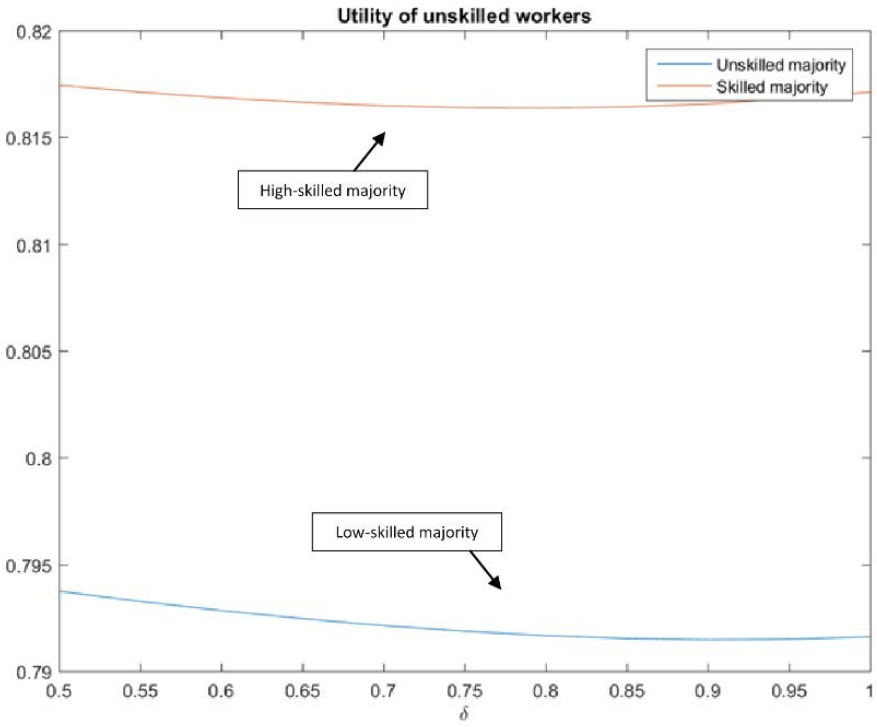


Figure 9: Utility Level of Low-Skill Individuals



Nevertheless, as Figures 8 and 9 indicate, financial globalization is indeed a Pareto-improvement change. Both skill types, regardless of who form the majority, benefit from financial globalization. Strictly speaking, the gains-to-all result depends crucially on the saving capacity of the poor-unskilled. In an extreme case where there is no capital income, and the rich-skilled group is in majority, the relatively poor group will lose. However, without the presence of the welfare state system it will lose more.

We have shown that the social benefits decline as delta decreases (globalization increases). Note that with high-skilled-rich group in the majority, the low skill utility gains do not change monotonically with access to the world markets. What are the gains are for the low-skilled workers that offset the reduction in benefits? It is essentially that they are getting a higher rate of return on their savings, due to greater access to world markets. That is, there are two conflicting forces at play: one hand the return to their savings rises with the globalization; on the hand,

wages and social benefits fall. If their initial endowment (wealth) is sufficiently low, and if the low-skilled have preferences that lead them to save much less relative to their endowments than the high-skilled, then the gains-to-all result might not hold.

Nevertheless, the welfare state system, either under the high-skilled regime or under the low-skilled regime, acts as a device that compensates the loser at the expense of the winner in a way that financial globalization generates in effect Pareto improving changes.

5. The "fiscal burden" hypothesis vs. The "magnet" hypothesis

Today's Western societies are sharply divided on migration policies—a reflection of deep social divisions that are accentuated by large-scale migration flows. This is not a fertile ground for populism, but rather nativism. Jeff Sachs (2017) put this succinctly when he said: "If people were told that they could move, no questions asked, probably a billion would shift around the planet within five years, with many coming to Europe and the US. No society would tolerate even a fraction of that flow. Any politician who says, 'let's be generous,' without saying—'we're not going to let the doors wide open' will lose." Rational and generous policy that also resonates politically will not eliminate national borders altogether. Rather, it will set calls for limits on flow of migrants. [12]

While immigration from poor countries often invokes images of large masses of unskilled laborers, in reality it has been quite skill intensive. Immigration into high-income countries, even

[12] See however, Razin (2018b) for a unique case of free migration (albeit only Jews) and exceptional robust assimilation of immigrants.

if from countries with lower income per person, tends to be more concentrated among highly educated than among less educated, relative to the population of the country of destination (see Peri [2016]). The explanation for the concentration of rich-country immigrants among the highly educated is the screening and selection migration policies by the destination countries.

In this context, Razin and Wahba (2015) examine two hypotheses associated with migration skill mix: the fiscal burden hypothesis and the magnet hypothesis.[13] The former asserts that under host-country migration policies the rise in the generosity of the welfare state will skew the skill mix toward skilled migrants because they can ease fiscal burden. The other hypothesis asserts that under free migration would-be low-skilled migrants will be more attracted to the welfare state, so that a more generous welfare state will have its skill mix skewed toward the low-skilled migrants. Accordingly, they investigate the effect of welfare state generosity on the difference between skilled and unskilled migration rates, and the role of mobility restriction in shaping this effect. They utilize the free labor movement within the European Union plus Norway and Switzerland (henceforth referred to as EUROPE, or EUR) and the restricted movement from outside EUROPE in order to compare the free-migration regime to the controlled-migration regime. Using bilateral migration movements, and splitting the sample among flows within EUROPE and flows from outside EUROPE, they identify the migration regime effect.

[13] See Appendix 2 for a description of the model.

Table 3 The Generosity of The Welfare State and the Skill Composition of Migration: Free versus Controlled Migration, selected variables[14]

	Category One and Two (EUR & DC to EUR)	Category One and Three (EUR & LDC to EUR)
Benefits per capita (b_d)	-0.170 (0.070)**	-0.178 (0.064)***
Lagged Benefits ($b_d I_{o,d}$)	0.207 (0.077)***	0.194 (0.080)*
Chi2(1) $\beta_2 + \beta_3$>0	7.72***	7.83***
Observations	360	534
R-squared	0.871	0.835

[14] $I_{o,d}$ is an index function which assumes a value of zero when (o,d) belong to the first category (free migration within the EUR countries) and a value of one when (o, d) belongs the second and third categories (controlled migration). ϵ_t is the residual variable. The dependent variable in this equation ($DM^*_{o,d}$) captures the skill composition of migration (a higher value indicates a composition tilted in favor of the high-skilled). The value of $DM^*_{o,d}$ in the estimation consists of the changes in the values of the components $m^i_{o,d}$ and P^i_o (i=s,u) defining $DM_{o,d}$ in equation (6.1) between the year 2000 and the year 1990. The explanatory variables consists of the social benefit in the destination country and a bunch of other control variables. In a free migration regime ($I_{o,d} = 0$), the effect of the social benefit on regime skill composition of migrants is given by the parameter β_ζ.

In a controlled migration regime ($I_{o,d} = 1$) , this effect is given by the sum $\beta_3 + \beta_4$.

The dependent variable DM in table 3 is defined by the difference between high-skilled and low-skilled migration rates as follows

$$DM_{o,d} = \frac{m^s_{o,d}}{P^s_o} - \frac{m^u_{o,d}}{P^u_o}$$

Where the (o,d) stands for the origin-destination pair and s,μ refer to high-skilled and low-skilled. Accordingly, $m^i_{o,d}$ is the stock of migration from origin country o to destination country d of skill level i=s,u. P^i_o is the total stock of individuals of skill level i=u,s in the origin country o.

Table 3 presents the estimates of the coefficients of a selected group of explanatory variables which are at the focus of the Razin-Wahba analysis. First note that the coefficient b_d is negative. This means that, as we hypothesized in the preceding chapter, the generosity of the welfare state tilts the skill composition of migration in favor of the unskilled in the free migration regime: the magnet effect.

Next, note that $b_d I_{o,d}$ is the additional effect of the generosity of the welfare state on the skill composition of migrants in the controlled migration regime, over the effect that exists in the free migration regime. Note that the coefficient of $b_d I_{o,d}$ is positive which means that, as hypothesized in the preceding chapter, the generosity of the welfare state affects more positively the skill composition of migrants in the Controlled migration regime, than in the free migration regime.

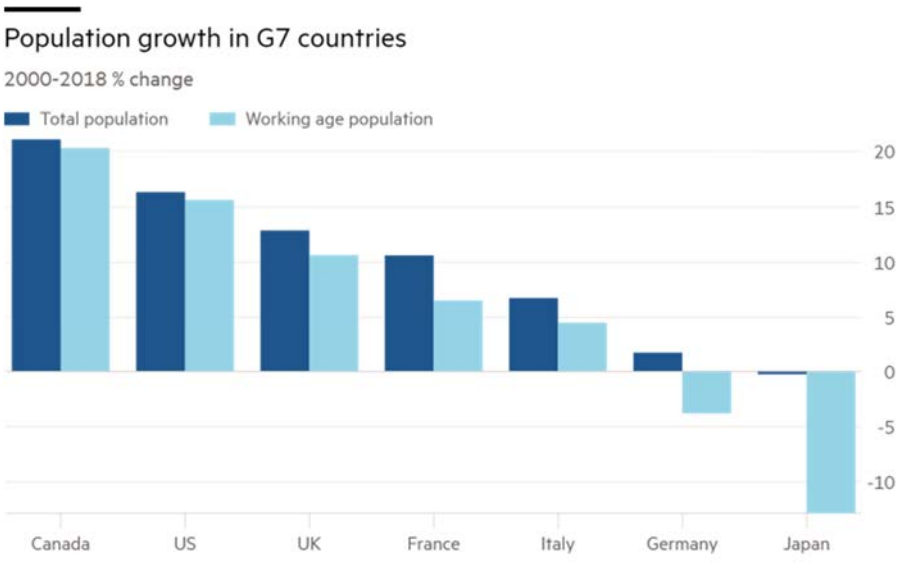
6. Aging Welfare State and Migration

The modern welfare state typically redistributes income from the young to the old, either by cash or in-kind transfers. With the aging of the population, the proportion of voters receiving social security has increased, and these pensions are by far the largest component of transfers in all industrial economies. Oeppen and Vaupel (2002) pose the question that lies at the heart of the aging process: “is life expectancy approaching its limit?" Their answer: “Many... believe it is. The evidence suggests otherwise. For 160 years, best-performance life expectancy has steadily increased by a quarter of a year per annum, an extraordinary constancy of human achievement." Indeed, the median age in Europe is forecasted to rise from 37.7 now to 52.7 in 2050 (The Economist, August 24th, 2002, p. 22). Similarly, the ratio of the elderly (aged 60 years and over) to the working-age population (aged 15-59 years) in West Europe is expected to double from 20

percent in the year 2000 to 40 percent in the year 2050 (op. cit, p. 22). These demographic trends are driven by declining fertility rates: “At present, West European countries are following what seems to be a normal demographic path: As they became richer after the 1950s, so their fertility rates fell sharply. The average number of children borne by each woman during her lifetime fell from well above the “replacement rate" of 2.1 - the rate at which the population remains stable - to less than 1.4 now" (op. cit. p. 11).

The U.S. Census Bureau projects the ratio of the elderly population (aged 60 years and over) to the working-age population (aged 15-59 years) to rise from a little over 15 percent in the year 2003 to almost 25 percent in the year 2050. The aging process is much more rapid in Western Europe, where this ratio is projected to at least double from about 20% in the year 2000 to over 40% in the year 2050. The aging of the population has far-reaching implications for national pension systems. Indeed, pension policy will come under increasing strain everywhere. In mainland Europe, where benefits are generous and pensions are not funded, governments will find it difficult to raise enough taxation to fulfill pension promises. The O.E.C.D. predicts that France, for example, will have to spend 33 percent more as a share of gross domestic product than it does now. For aging and trends in population growth see Figures 10-11.

Figure 10: Population growth has been shrinking in the G7 countries; especially in Germany and Japan



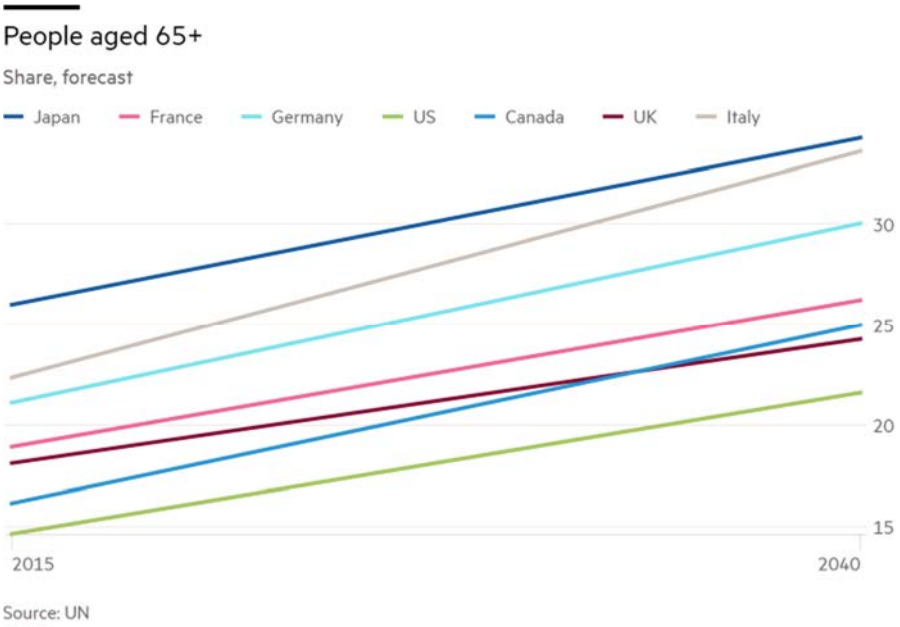


Figure 11: people aged 65+ .

In many other countries, the simulated tax contribution rates that would balance the old-age social security systems are significantly higher than the statutory rates. To put these staggering figures in a proper perspective, recall that the Stability and Growth Pact of the EU puts a 60 percent target ceiling on public debt as a percentage of national income! A comprehensive study conducted recently by Jagadeesh Gokhale and Kent Smetters (2003) takes into account all

current liabilities and projected future expenditures of the U.S. government and compares them with all the revenues the government can expect to collect in the future. The difference (in present value) is a staggering deficit of 44 trillion dollars, an almost quadruple of GNP. Major contributing factors to this deficit are old-age social security and Medicare. Similarly, the widespread low-skill migration also puts a strain on the public finances of the welfare state. Being relatively low earners, migrants are typically net beneficiaries of the welfare state, that is, they are expected to receive benefits in excess of the taxes (contributions) they pay. For instance, a recent study, initiated by the U.S. National Research Council, estimates the overall net fiscal burden of migrants (aged 20-40 years, with less than high school education on arrival) at about $60,000-$150,000, over their own lifetime; see Smith and Edmonston (1997) and Blau and Mackie 2017). One would naturally expect that as the share of the elderly in the population rises when the population ages, their political clout would strengthen the pro welfare-state coalition. Similarly, one would expect this coalition to gain more political power as more low-skill migrants are naturalized. Thus, aging and migration seem to tilt the political power balance in the direction of boosting the welfare state, imposing a growing burden on the existing workforce. But this political-balance force conflicts with the fiscal-burden force if aging comes together with low-skill migration which increases the share of net recipients of the generous welfare state. But what if the welfare state tries to rely more heavily on capital taxes in order to finance the social benefits it provides? Recall that the old derive most of their income from capital because they retired from work. So, at first thought, it may seem that as the share of the old in an aging population rises, then an attempt to rely more heavily on capital taxes would face a stiffer political resistance. However, after a careful scrutiny of this hypothesis we come to an unconventional conclusion: Aging plausibly tilts the political power balance in favor of larger

capital-financed welfare state. Literature cited provides also supportive empirical evidence from the EU for this conclusion. Is the latter conclusion relevant? After all, aging is not the only process witnessed nowadays.

The income redistributive feature of the welfare state makes it an attractive destination, particularly for low-skill immigrants. For example, a study by Borjas (1994) indicates that foreign-born households in the U.S. accounted for 10% of households receiving public assistance in 1990, and for 13% of total cash assistance distributed, even though they constituted only 8% of all households in the U.S.

7. Migration and the welfare-state survival: Theory

The welfare state needs immigration to be sustained. The political coalitions that are induced by aging will opt for allowing in young and productive migrants that can support the welfare state (Razin, Sadka and Suwankiri (2017)).[15]

Most advanced economies face a generational distribution problem that migration might help with, but migration affects young and old, rich and poor, differently. The welfare state of these advanced economies is also a magnet for migrants, especially the low-skill. On the one hand, the native-born older population need young immigrants to support the welfare state; on the other hand these immigrants may increase the fiscal burden on the native-born young. How these tensions are to be resolved in the political economy context? To highlight the intrinsic dynamics of coalition formation in the context of a welfare state and in the presence of migration. [16]

[15] See Appendix 3 for a description of the model.

[16] Razin and Sadka (2014) and Razin et al. (2014)) help us think about the various sharp and seemingly inconsistent reactions of different income and age groups to migration and welfare state policies.

There are three distinct voting groups: skilled workers, unskilled workers, and old retirees. The essence of inter- and intra-generational redistribution of a typical welfare system is captured with a proportional tax on labor income to finance a transfer in a balanced-budget manner. Our recent research analyses the political-economic equilibrium policy rules consisting of the tax rate, the skill composition of migrants, and the total number of migrants. When none of these groups enjoy a majority (50% of the voters or more), political coalitions will form. With overlapping generations and policy-determined influx of immigrants, the formation of the political coalitions changes over time. With forward-looking voters, the future changes are strategically taken into account when policies are shaped. A common feature among models with Markov-perfect equilibrium, as in the Razin et al (2014) model, is the idea that today's voters have the power to influence the identity of future policymakers. We built a dynamic political-economic model featuring three distinct voting groups: skilled workers, unskilled workers, and retirees, with both inter- and intra-generational redistribution, resembling a typical welfare state. The skilled workers are net contributors to the welfare state whereas the unskilled workers and old retirees are net beneficiaries. They provide an analytical characterization for the policymaking coalitions, which design the tax rate, immigrants' skill composition, and the total number of immigrants.[17] The model is designed to make a three-dimensional policy choice in such a way that there are a clear 'left' group, a 'center' group, and a 'right' group. The left group consists of the old native-

[17] The electoral system is that of Besley and Coate (1997), known as the citizen-candidates model with strategic voting behaviors (also similar to Osborne and Slivinski (1996), albeit under sincere-voting behaviors). Each of the three distinct voting groups presents a candidate who will implement the most preferred policy of his group, if elected. When one of these groups enjoys a majority (that is, it constitutes more than 50% of the voters), then its candidate automatically wins the election and implements his most preferred policy. Noteworthy is that the current preferred policy (especially with respect to immigration) takes in to account how immigration may change the composition of the voters in each group and, consequently, the policy that will be implemented in the future. When no group enjoys the majority, there is effectively a 'second round' run-off between two candidates representing the two largest groups of voters. Despite having its representative candidate, the third group, the smallest, will vote for the candidate of that one of the two largest groups whose most preferred policy is better for the third group, even though this policy is not the preferred policy of the third group.

born and the old first-generation immigrants (both skilled and unskilled) who earn no income and wish to extend as much as possible the generosity of the welfare state. They prefer to admit as many skilled immigrants as possible to help finance the generosity of the welfare state. The right group consists of the native-born skilled workers who bear the lion's share of financing the welfare state and wish therefore to downscale its generosity as much as possible. The attitude of this group toward skilled immigrants is subject to two conflicting considerations. On the one hand, they benefit from the contribution of the skilled immigrants to the financing of the welfare state, which alleviates the burden on them. On the other hand, they are aware that the offspring of the skilled immigrants will vote to downscale the generosity of the welfare state in the next period, when the members of this right group turn older and benefit from the generosity of the welfare state. The fact that the fertility rate of immigrants is larger than the native-born amplifies this consideration.

The center group consists of the native-born unskilled young. They do like the generous welfare state, but not as much as the old do because they also pay for it. They like it more than the native-born skilled young do, because they pay less for it –making them net beneficiaries. With respect to immigration, they (like the native-born skilled young) face two conflicting effects. On the one hand, they would like to admit skilled immigrants who contribute positively towards the finances of the welfare state in the current period. But, on the other hand, they are concerned that the skilled offspring of these skilled migrants will tilt the political balance of power in favor of the skilled in the next period; and, consequently, against the generosity of the welfare state. The center group is more pro-skilled immigrant than the left group, but similar in attitude to the right group.

A common feature among models with Markov-perfect equilibrium is the idea that today's

voters have the power to influence the identity of future policymakers.

The migration policy of either young group reflects the fact that they may want to make themselves the largest group in the next period. Thus, instead of letting in too many migrants (who will give birth to a large new generation of skilled workers) they will want to limit immigration. The skilled are net contributors to the welfare state, while the other two groups are net beneficiaries. The preferences of the old retirees are simple. If the old cohort is the largest, it wants maximal welfare social benefits; that is, taxing up to the Laffer point. They also allow the maximum number of skilled migrants into the economy in order to benefit from their tax contributions.

The unskilled young are net beneficiaries of the welfare state. Clearly, the unskilled workers also prefer a migration policy that lets in skilled immigrants (due to their contribution to the welfare state). Nevertheless, the unskilled also pay taxes. Hence, the preferred tax rate of the unskilled voters must be smaller than the Laffer point. How many they will let in depends on a simple tradeoff. They weigh the future social security benefits against the tax burden in the present. If the unskilled workers are not sufficiently forward-looking, it is in their best interest to let into the economy as many skilled migrants as the economy is capable of absorbing. If, however, they are not so myopic, such a large wave of migrants – who are more fertile then their native-born counterparts – will lead to too little income redistribution in the next period, because the skilled workers will be the largest voting group.

The skilled native-born young prefer more skilled migrants for a different reason than the other two groups. Thanks to the higher fertility rate of migrants, this will create higher number of skilled native workers in the next period when they retire, compared to the native-born. By being forward-looking, the skilled native-born will also prefer to let in more skilled workers in their

retirement period. However, they prefer not to let in too many of them, because migrants' high birth rate may render the skilled young in the next period the largest group, who will then vote to weaken the generosity of the welfare state.

Note that the current political debate in the US about the path to citizenship of the existing illegal immigrants is significantly influenced by current expectations about how these new citizens may affect the future composition of the voting population.

The evolution of coalition formation and the fiscal and immigration policies over time depends naturally on the state in which the economy starts. Razin et al. (2014) model the problem at hand so that the state variable of this stylized economy depends exclusively on the share of the native-born skilled young in the total native-born young population. We find that there are several decisive ranges for this share that determine which one of the three groups' preferred policies prevails. The ranges are arranged from the lowest values of the state variable (starting from 0), up to the largest value of the state variable (ending at 1). These ranges depend on the fertility rates of the native-born and the first-generation immigrants. That is, the cut-off levels of the state variable, which are the borderlines of the ranges, depend on the ageing of the population. When the share of the native-born skilled young (in the total native-born young population) falls into the lowest range, the policy that will be implemented is the preferred policy of the center group (the native-born unskilled young). In this case, this group forms a majority and its candidate is able to implement his most preferred policy – moderate welfare-state generosity with large, but not extreme, influx of skilled immigrants only. Therefore, the share of the native-born skilled grows over time. Eventually the share enters the next range.

When the share enters the next range, the center group is still the largest group, but does not constitute a majority. The native-born skilled is the smallest group in this case. This latter group,

being on the right, always prefers the most preferred policy of the center group to the most preferred policy of the left group (the old). Therefore, the most preferred policy of the center will win, though by a coalition (with the right) in this case, rather than by a sheer majority of the center group. Note that this policy increases over time the share of the native-born skilled, and eventually the share of the native-born skilled young in the total native-born young population enters the next range.

When the share of the native-born skilled young in the total native-born young population moves into the next range, then the left group (the old) is the largest group, but does not constitute a majority. The right group (the native-born skilled) is the smallest group. In this case, the center group (the native-born unskilled) will join a coalition led by the left, provided that the preferred tax rate of the left group is not excessive. The left group candidate wins and the most preferred policy of the left will be implemented – an extreme generosity of the welfare state and an extreme influx of skilled immigrants.

Consequently, the share of the native-born skilled young in the total native-born young population continues to rise, and so on. Eventually, when the share of the native-born skilled young in the total native-born young population becomes too large, the right group (the native-born skilled) becomes the largest group and its candidate will get to implement the group's most preferred policy – the generosity of the welfare state will be severely downscaled. All will be concerned about admitting more skilled immigrants; it would render the skilled in the next period an unbeatable majority, who would severely cut their benefits in the next period, when they grow old. This future threat to the welfare state helps balance the dynamic forces to further changes in the share of the native-born skilled young in the total native-born young population, and it stops rising. Only limited skilled immigrants are to be allowed in. The share of skilled native born will

then converge to its steady state.

Naturally, a lower rate of population growth (that is, an ageing population) increases the political influence of the old (the left group). However, as Razin et al. (2000) demonstrate the increased share of old-age dependents in the population also raises the fiscal burden on the young (particularly, the skilled). Thus, the effect of ageing of the native-born on the coalitions is subject to two conflicting effects: the change in the political balance and the change in the fiscal burden on the working-age population.

8. Conclusion

Can the welfare state, financed by labor, and capital taxes, survive international tax competition brought about by financial globalization? The answer this paper gives is that it can.

The welfare state is crucial to spread the gains from financial asset trade across various income groups. A political economy analysis, where pillars of the welfare state system that are determined by the majority, poor, low skilled, or, rich, high skilled, is brought up to assess the forces of globalization on income inequality. The welfare state allows in migration to sustain its financing.

One would naturally expect that as the share of the elderly in the population rises when the population ages; their political clout would strengthen the pro welfare-state coalition. Similarly, one would expect this coalition to gain more political power as more low-skill migrants are naturalized. Aging tilts the political power balance in the direction of boosting the welfare state, imposing a growing burden on the existing workforce, by allowing more immigration. Aging

plausibly also tilts the political power balance in favor of larger capital-income financed welfare state.

Many large industrialized economies have embarked in recent years on a track of trimming the generosity of their pension and other welfare-state programs. The general rules are quite straightforward: Raise retirement age and curtail benefits. Following the report of the Greenspan Committee (January, 1983), the U.S. has gradually raised the retirement age to reach 67 in the year 2027. Similarly, but much later France, in July 2003 decided to require public sector workers (about one-fourth of the French workforce) to contribute to the state pension system for 40 years, instead of 37.5 years. Also, Germany, which already raised its retirement age from 63 to 65, is currently contemplating raising it further to 67 between 2011 and 2035. With respect to curtailing benefits, this is usually accomplished by abandoning wage-indexation in favor of price-indexation. Naturally, as real wages rise over time (due mostly to productivity increases), price-indexation is less generous to pensioners than wage-indexation; see Cogan and Mitchell (2003) for the U.S. and Thode (2003) for Europe. Financial globalization across various economies is a universal phenomenon to reckon with today. Can the welfare state, financed partly by high capital taxes survive international tax competition brought about by such globalization? Evidently, the answer is in it can; and it seems to be crucial to spread the gains from financial asset trade across various income groups. To demonstrate these points we apply a political economy model where the pillars of the welfare state system are determined by the majority group, poor-low skilled or rich-high skilled to assess the forces of globalization.

We have shown that the social benefits decline as financial globalization increases. What are the gains are for the low-skilled workers that offset the reduction in benefits? It is essentially that they are getting a higher rate of return on their savings due to greater access to world markets.

But in essence their well-being is subject to two conflicting forces that are at play: one hand the return to their savings rises with the globalization; on the hand, wages and social benefits fall. If their initial wealth is sufficiently low, and if the low-skilled have preferences that lead them to save much less relative to their wealth than the high-skilled-rich, then the gains-to-all result might not hold. However, even in this case they are better off having a welfare state system in place rather than its absence, to compensate them from depressed wages and declining provision of social benefits.

One would naturally expect that as the share of the elderly in the population rises when the population ages, their political clout would strengthen the pro welfare-state coalition. Similarly, one would expect this coalition to gain more political power as more low-skill migrants are naturalized. Thus, aging and low-skilled migration seem to tilt the political power balance in the direction of boosting the welfare state, imposing a growing burden on the existing workforce. But this political-balance force conflicts with the fiscal-burden force if aging comes together with low-skill migration which increases the share of net recipients of the generous welfare state. But what if the welfare state tries to rely more heavily on capital taxes in order to finance the social benefits it provides? Recall that the old derive most of their income from capital because they retired from work. So, at first thought, it may seem that as the share of the old in an aging population rises, then an attempt to rely more heavily on capital taxes would face a stiffer political resistance. However, after a careful scrutiny of this hypothesis we come to an unconventional conclusion: Aging plausibly tilts the political power balance in favor of larger capital-financed welfare state. Literature cited provides also supportive empirical evidence from the EU for this conclusion. Is the latter conclusion relevant? After all, aging is not the only process witnessed nowadays.

Appendix 1: Financial globalization and the welfare state: 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 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. Producers equity-finance their activity, and all international capital flows are in the form of equity securities.[18] 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) $F(K, L) = AK^{\alpha}L^{1-\alpha}$,

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.

[18] Evidently, debt flows have a special tax treatment and will not be considered.

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,

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

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.

We assume a pure source-based taxation. This means that the country does not impose taxes on foreign-source income.

Capital flows internationally, albeit at some cost- δ per unit. [19]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^* , $r^* and\ \delta$) 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) $1 + (1 - t_K)r = 1 + (1 - t_K^*)r^* - \delta.$

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

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

[19] 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.

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.

These preferences yield the following consumption functions:

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

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

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

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

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

The second-period resource constraint is:

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

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

(15) $b + t_L\big(\gamma\rho + (1-\gamma)\big)w + t_K rK.$

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.)

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 aret_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 $u_h = c_{1h}^{\beta} c_{2h}^{1-\beta} + b^{\sigma}$.

Appendix 2: Free vs Policy Controlled Migration and the Welfare State

Assume a Cobb-Douglas production function, with two labor inputs, skilled and unskilled

$\mathrm{Y} = \mathrm{AL\{s\}^{\alpha} L\{u\}^{1-\alpha}}$,

where, Y is the GDP, A denotes a Hicks-neutral productivity parameter, and L{i} denotes the input of labor of skill level i, where i= s, u for skilled and unskilled, respectively.

The competitive wages of skilled and unskilled labor are, respectively:

$$w\{s\}=\alpha Y/L\{s\}$$

$$w\{u\}=(1-\alpha)Y/L\{u\}.$$

Aggregate labor supply, for skilled and unskilled workers, respectively, is given by:

$$L\{s\}=(s+\sigma\mu)l\{s\}$$

$$L\{u\}=(1-s+(1-\sigma)\mu)l\{u\}.$$

There is a continuum of workers, where the number of native born is normalized to 1; s denotes the share of native born skilled in the total native born labor supply; σ denotes the share of skilled migrants in the total number of migrants; μ denotes the total number of migrants; and l{i} is the labor supply of an individual with skill level i∈{s,u}

Total population (native born and migrants) is:

$$N = 1 + \mu.$$

We assume a simple welfare-state system which levies a proportional labor income tax at the rate τ, with the revenues redistributed equally to all residents (native born and migrants alike) as a uniformly distributed social benefit, b, per capita. The social benefit variable captures not only a cash transfer but also outlays on public services such as education, health, and other provisions, that benefit all workers, regardless of their contribution to the tax revenues.

We start with policy-controlled migration by the majority. Assume that the host country faces a perfectly elastic supply of migrants of each one of the two skill types, so that host-country migration policy is the sole determinant of migration flows. The policy is determined by the median voter in the host country .We assume that the policy decisions on the tax rate, τ, and the total volume of migration, μ, are exogenous. We do this in order to focus the analysis on a single endogenous policy variable, which is the skill composition of migrants, σ. Once σ, μ ,τ are determined, then the social benefit, b, is given by the government budget constraint; we thus denote the social benefit b as $b(\sigma;\tau)$; where the exogenous variable μ is suppressed.

A change in the share of skilled migrants in the total number of migrants, σ, affects the utility level through two channels. First, an increase in σ raises average labor productivity and thereby tax revenues. This, in turn, raises the social benefit, b. Second, an increase in σ , which raises the supply of skilled labor relative to the supply of unskilled labor, depresses the skill-premium in the labor market.

If only the native-born population is eligible to vote on the migration policy, as the new migrants are yet a part of the host country. If the decisive voter is unskilled, both of the above effects increase her utility. Thus, an unskilled voter would like to set the skill-composition of migrants at the maximal limit, $\sigma=1$. This means that the share of skilled migrants preferred by the decisive skilled voter is typically lower than that preferred by the decisive unskilled voter. We plausibly assume therefore that the decisive skilled voter would like to set σ below 1 (which is equivalent to assuming that the first-order condition is met before σ reaches 1).

To find the effect of the change in the generosity of the welfare state on the migration policy concerning σ. The generosity of the welfare state, captured by the magnitude of the social benefit, b; which depends positively on the tax rate, τ (we assume that economy is on the "correct side" of the Laffer curve). We thus look for the effect of τ on the change in the skill composition of the migrants, σ. If the decisive voter is an unskilled worker, an exogenous increase in the tax rate, τ, would leave the skill migration policy unchanged, because it is always set at the maximum possible limit. If, however, the decisive voter is a skilled worker, an exogenous increase in the tax rate, τ, will change the policy concerning the skill-composition of migrants in the direction towards a larger share of skilled migrants. The reason is that when the tax rate is higher, the redistribution burden upon a skilled decisive voter increases. Allowing additional skilled migrants can ease this rise in the fiscal burden.

If we switch to a free migration regime where no restrictions are placed on migration by the policymakers in the host country. The level of migration depends entirely on the choice of potential migrants. In choosing whether to migrate or not, a potential migrant of skill compares his prospective utility in the migration destination, to the reservation utility in the source country. For each skill level, we assume that there is a continuum of would-be migrants, different with respect to the reservation utility level in the source country. This heterogeneity of reservation utilities in the source country could stem from different traits of the potential migrants (e.g., family size, age, moving costs, forms of portable pensions, housing, cultural ties, etc.). Thus the host country faces an upward sloping supply curve of potential migrants from the source country for each skill level i.

Let m{s} is the number of skilled migrants, and m{u} is the number of unskilled migrants.

We can use this to find the supply curve of the potential migrants and hence the number of migrants for each skill level. By definition, the number of migrants of each skill level, i=s,u, is determined by the supply of migrants, that is

To find the effect of an exogenous change in the generosity of the welfare state on the skill mixture of the migrants. We show in the appendix that:

$$((d\sigma)/(d\tau)) < 0.$$

The rationale for this result is as follows. An increase in τ raises the social benefit, b, but lowers the net wage, (1-τ)w{i}. For skill migrants, the fall in net wage outweighs the increase in the social benefit. Thus, an increase in τ reduces the well-being of skilled workers. Consequently, an increase in τ reduces the cut-off reservation utility of skilled migrants. As a result, those skilled migrants with reservation utilities between the old one the new cutoff levels will choose not to migrate. The opposite holds true for unskilled migrants. Thus an increase in the generosity of the welfare state under free migration deters skilled migrants and attracts unskilled ones, thereby tilting the skill composition of migration towards unskilled migrants.

Appendix 3: A Coalition-Formation and migration-Welfare-State Model

We consider a standard two-period, overlapping-generations model. Each cohort works in the first-period in his life and retires in the second. There are two skill types: skilled and unskilled. The welfare-state is modeled simply by a proportional tax on labor income to finance a lump-sum social benefit (i.e., a demogrant) period-by-period in a balanced-budget manner. The lump-sum benefit is perfectly substitutable to private consumption. One can also extend the analysis in a straightforward manner to have public services (e.g. education, health) which are not perfectly substitutable to private consumption. With saving, since old individuals do not work in the last period of their life, they will consume their savings plus any transfer. Through both these channels, the old individuals benefit from migration. This essentially reduces the two groups of old retirees (skilled and unskilled), potentially distinguishable by their levels of saving, to just one group with identical preference irrespective of their skill type. There is just one good, which is produced by using the two types of labor as perfect substitute with constant marginal products. The production function is of a Cobb-Douglas form. Labor markets are competitive, ensuring the wages going to the skilled and unskilled workers are indeed equal to their marginal products. Because the old retirees have no labor income and saving for simplicity is equal to zero, their only source of income comes from the social benefit variable.

The parameters of the welfare state (τ {t} and, consequently, b {t}), the political process also determines migration policy which consists of the volume of migration, and the other determines its skill composition. We denote by μ_{t} the ratio of allowed immigrants to the

native-born young population and denote by σ{t} the fraction of skilled migrants in the total number of migrant entering the country in period t. Migrants are assumed to have identical preferences to the native-born. Furthermore, we assume all migrants come young and they are naturalized one period after their entrance. Hence, they gain voting rights when they are old.

The dynamics of the economy is given by two equations: one governs the aggregate population, while the other governs the skill composition. We assume here that, for both native-born population and migrants, their offspring replicate exactly the skill level of their parents.

Let n and m denote the population growth rates of the native-born population and of the migrants, respectively. We assume that $n < m \leq 1$. The demographic assumptions imply that the fraction of the native-born skilled in the native-born labor force will be higher in period t+1 than in period t if the proportion of skilled migrants in period t is higher than that of the native-born, that is, if σ{t} > s{t}. Naturally, when there is no migration the share of skilled workers out of (native-born) young population does not change over time. The evolution of the model thus reduces to a single equation, equation with a single state variable s{t}.

Being balanced period-by-period, the welfare-state system is a pay-as-you-go system.

A larger $\sigma\{t\}$ increases the social benefit variable. That is, a higher skill composition of migrants brings about higher tax revenues, and, consequently, enables a more generous welfare state, other things being equal. A higher volume of migration enables a more generous welfare system if the share of the skilled among the migrants exceeds the share of the skilled among the native-born workers ($\sigma\{t\} > s\{t\}$).

We allow voters to vote strategically. The political process in each period has three stages. At stage 1, three candidates, one from each respective group, are randomly chosen. We assume that the size of the population is large enough such that the probability of the randomized selection is infinitesimal, hence not taken into the account by each citizen when voting or implementing the policies. At stage 2, the citizens cast their votes for one of the three candidates. In the final stage, the candidate that wins by plurality chooses and implements the policy. We will now analyze these stages in reverse order.

In the final stage, the winning candidate will always implement his preferred policies. Due to the lack of commitment mechanism such as reputation loss or reelection motive, any promise to deviate from this ideal point will be viewed as cheap talk in equilibrium. In the second stage, three candidates are randomly chosen from each group of voters. The simplifying assumptions imply that there are only three distinct voting groups: the skilled native-born workers, the unskilled native-born workers, and the old retirees. Within each group, the preferences of the voters are identical by structure, and hence voters in each group will have

identical voting preference. Because identical voters vote identically, we thus focus on the decision of a representative voter from each group.

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