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Migration and Welfare Systems – State of the Art and Research Challenges²

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Abstract: Immigration is one of the heavily discussed subjects in modern academic and political debate. In recent decades, fiscal effects of international migration remained the centre of interest. The goal of this paper is to review and synthesise the available literature, devoted to the relationship between immigration and welfare systems, in order to present the state of the art in this area and draw conclusions for further research. Despite extensive literature, it is difficult to find an unambiguous answer to the question, whether immigrants are a burden or an asset to the state with redistributive policies. Moreover, some of the assumptions and approaches widely used in presented articles appear too simplistic or even unfounded.

Keywords: immigration, welfare systems, benefits

JEL Codes: I30, J15, J18, F22

1 Introduction

Immigration has been a heavily disputed subject in developed countries for many years, and it became a pivotal one in the last decade. Among questions regarding race, culture or language, economic dimension lately became one of the most frequently discussed. Immigration is alleged to have significant impact on the labour market, real estate prices or industrial output. Additionally, questions about the fiscal effects of migration and its impact on the welfare state appear more often in the policy debate. There are at least three reasons for this increased interest: first, immigrants became a significant and growing proportion of most modern societies (13% on average in OECD countries); second, ageing population increases the level of government financial liabilities; lastly, the global financial crisis of 2008/09 increased the strain on public finances (OECD 2013). This paper seeks to provide an answer, based on available literature, whether immigration is an asset or a burden to the host state with developed redistributive policies. A review of the current state of knowledge suggests that the economists are far from drawing an unequivocal conclusion about the impact of immigration on the welfare state and fiscal policy of the destination countries. Additionally, very few authors analyse how the welfare systems in source countries affect immigration patterns and decisions. These two statements form the hypotheses of this paper: that the prevailing literature does not unambiguously answer the question about the relationship of immigration and the welfare state; and that the role of the welfare systems in the source countries has been so far largely ignored. The latter statement is a part of a larger problem, consisting in an excessive focus on migrants rather than characteristics of source and host communities, which in turn affects the level of public debate.

Discussion about economic effects of mass migration into the European Union lately became a political one. Three main arguments appear in the dispute more often than others. First, it is argued that immigration can lead to a production surplus – stemming from the fact that benefits, caused by the positive supply shock on the labour market, are not entirely consumed by the immigrants. Opponents of this idea claim that this phenomenon has an adverse impact on wages of at least some native workers and can be altogether offset if immigrants displace the natives on the labour market. Second, some suggest that immigration has a positive effect on age distribution and population growth, which could potentially reduce the financial burden of social security, present in most European states. A counterargument says that, considering the prevailing skill composition of immigrant population and employment patterns, an additional economic strain on social security systems is more likely. Moreover, some estimates show that the number of working-age immigrants, necessary to effectively solve European demographic problem, is extremely high (UN 2000). Third, classical economics predict a positive demand effect of immigration, which should lead to an increase in production. However, such outcome is conditional on the means of financing immigrant consumption and can be reversed in the presence of welfare benefits. Two of the arguments listed above are closely tied to the presence of redistributive policies in developed, host economies. It is therefore important for economics and social science to come up with ways of quantifying this relationship and providing policy-makers with the correct answers. The paper is structured as follows: the second section provides a definition of welfare and the welfare state and discusses widely used typologies. The third section contains a review of the literature devoted to immigration in the presence of redistributive policies. The last section concludes.

2 The definition of welfare and the welfare state

It is difficult to find one obvious definition of welfare or the welfare state. The former is often described as the level of prosperity and quality of living in an economy, which makes it difficult to quantify. Nevertheless, many measures are used as proxies, such as GDP per capita, employment or literacy rates. In the economic terms, welfare is often operationalised as the level of utility – by its nature unmeasurable, but convenient to use in theoretical modelling and analyses. According to Barr (1992), individual welfare is derived from at least four sources: wage income, occupational welfare (provided by firms voluntarily or under legal compulsion), private provision (in form of savings or insurance) and voluntary welfare (both inside and outside family). Such definition of welfare is difficult to reconcile with the concept of welfare state. The latter term, although more tangible, also baffles economists. Examples of its operationalisation include entire public consumption expenditure (Kohl 1981), or expenditure less the military (Castles 1998) and public-order spending (O'Connor 1988). It is often used to represent the joint state activities in four areas: cash benefits, health care, education, and food, housing and other welfare services (Lampman 1984). Given this duality, it should not come as a surprise that there are two distinct approaches to be found in the welfare-migration literature: one concentrating on measuring changes in levels of utility in different migration scenarios; and one devoted to quantifying the impact that immigration has on redistribution systems in source and destination countries. As can be seen from the following sections, they have little in common. Moreover, there are three factors, which make it even harder to disentangle the two phenomena (Barr 1992). First, as listed above, individuals derive welfare from sources other than state's activity, but the state interferes in individual welfare by providing abovementioned benefits. It also contributes to occupational and private provision through tax expenditures. Second, the methods of delivering welfare services are diverse. They can be fully funded and produced by the state, like the health-care services in Poland or Sweden. They can also be funded by the state but produced by the private sector, like the Medicare in the United States. Welfare provision can also take form of direct transfers to individuals (explicitly or by tax relief), which are later used to make purchases. Lastly, it is difficult to settle the limits of the welfare

state. Some kinds of expenditure, usually excluded from the analyses, are very similar in purpose to the activities listed above (e.g. environmental policies). Another concept, closely tied with the fiscal dimension of the subject, is the welfare state generosity. One of the earliest and widely used distinctions, proposed by Wilensky and Lebaux (1965), distinguishes between residual and universal welfare state. The former is intended mostly as the safety net for the poor, thus characterised by the means-tested, publicly provided benefits. On the other end of the spectrum, in the universal welfare state, services are intended for all socio-economic groups. This suggests that the generosity of the welfare state must be measured both by the level of spending as well as the availability of the services.

In his seminal 1990 article "The Three Worlds of Welfare Capitalism," Esping-Andersen presents the classification of welfare systems, based on three main components: the degree of decommodification, the level of social stratification and the division of roles between private and public sector. He distinguishes three clusters of welfare states, based on his analysis of OECD countries: conservative, liberal and social-democratic. In the conservative (corporatist) welfare state, rights are attached to class and status, and the role of the private sector is marginal. Welfare system is shaped by the church and committed to preservation of traditional family values, but has little or no redistributive impact. The liberal welfare state consists mainly of means-tested assistance, modest universal transfers and social insurance plans. Benefits are granted predominantly to the low-income, working-class state dependants. Such system minimises decommodification effects, but erects an order of social stratification, as entitlement is often associated with stigma. In the social-democratic regime, all social strata are incorporated into one insurance system. It is based on universal solidarity, but contributes to crowding out the market. It is also characterised by strongly interventionists state, income protection, and commitment to full employment. Since the time it was published, Esping-Andersen's influential work has been critiqued and challenged in many areas. First, the range of the countries taken into consideration (18 OECD states) is said to strongly influence the results. Both Leibfried (1992) and Ferrera (1996) show that including more Southern European countries results in distinction of another cluster ('Southern' or 'Latin rim' welfare state). Similar conclusions were drawn from analysis of East Asian welfare states ('Confucian' welfare state). Second, Esping-Andersen's analysis is not gender sensi-

tive, in the way that it does not take into consideration the role of women and family in provision of welfare or the role of gender in construction of social stratification (Sainsbury 1994; Bambra 2005). Additionally, the only dimension of welfare that appears in the paper are social transfers. Such critical issues as provision of social services (education, healthcare, etc.) are omitted. Lastly, some researchers question the validity of statistical methods used by Esping-Andersen in his study, especially the use of cut-off points and the miscalculation of certain values (Bambra 2007; Scruggs and Allan 2006). Criticism led to construction of alternative typologies. For example, Kautto (2002) includes social services in the analysis. He argues that, although European welfare states were historically classified as either ‘continental’, with dominant role of transfer expenditures, or ‘Scandinavian’, where public consumption prevailed (Kohl 1981; Castles 1998), the welfare states became more uniform in the 1990s. Thus, keeping both transfers and services in focus allows for a more comprehensive classification. Empirical analysis performed by the author suggests that a convergence into a ‘Nordic’ welfare state scheme was present among the EU countries in the late 20th century. In another work, Navarro and Shi (2001) look into the importance of political parties and policies for the process of formation of welfare regimes in the post-war European Union.

Based on this discussion, it is easy to see that defining welfare state or proposing its typology is a complicated matter. In most of the approaches described in this paper welfare state is modelled as a part of fiscal policy, taking form of a tax-funded, direct and equal benefit (demogrant), in either vertical or horizontal redistribution. However, two dimensions mentioned above: eligibility and level of spending, take part in formulation of some of the models presented below.

3 Economic theories of migration and welfare

Economic theory of migration seeks to answer three main questions: **why** people migrate, **who** migrates and **what** are its consequences. According to the classical economic theory, increase in productive factor endowment, such as labour, boosts the production and can slow down inflation. Moreover, international trade theories suggest that migration between two states with unequal factor endowments is mutually beneficial to

those involved. However, in recent years immigrants have been considered more as a burden than an asset (Bodvarsson and Van den Berg 2009). The main reason for such discrepancy is the fact that most modern developed economies are characterised by a welfare state with strong redistribution mechanisms. The presence of a welfare state leads to asymmetrical distribution of gains from migration between immigrants and natives in a traditional, LDC (less developed countries) to MDC (more developed countries) migration. On the other hand, generosity of the welfare state is often considered as a very important factor in individual migration decision, and as such may have significant impact on international migration flows. The following section presents the main strands of rich literature on migration and welfare.

3.1 Economic theories of migration decision

Economists distinguish between four groups of factors, affecting individual migration decision: **pull**, **stay**, **push** and **stay away**. The former two terms describe positive incentives that encourage people to come into the destination country or remain where they are. The latter two are negative factors, which cause people to avoid a destination country or leave their home. Numerous such motives are mentioned in the literature, few of which are described below.

3.1.1 Neoclassical economics

In neoclassical economics, the theory of migration decision is, in many cases, an application of the human capital (labour flow) model. Migration is in this setting treated as an investment in one’s well-being, because it involves incurring some cost at the beginning and receiving an uncertain return in the future. This perspective leads to the conclusion that migration depends on international differences in the returns to factor supply, controlling for migration costs, skill levels, income inequality and policies (Bodvarsson and Van den Berg 2009). At the micro level, such an approach implies that migrants maximise their utility by choosing the location, which offers the highest net income. In most cases this strand of literature does not take welfare systems and social services into consideration. There are, however, features of neoclassical models that can account for differences in welfare regimes between countries.

In his 1962 seminal paper, Sjaastad models the migration decision as an utility (profit) maximisation problem. The agents face wages in different countries and incur costs when they decide to move. Such expenses are, among other things, related to leaving certain assets behind – for example contributions to pension plans or employee benefits, healthcare, education or housing services. Generous welfare systems or high-quality social services should, according to this model, lead to lower outmigration rates. Sjaastad assumes that all types of costs vary with distance. His model captures three main aspects: the delay between migration costs and benefits, earnings and cost of living differences between countries, and preferences regarding time. It is, however, a single-period model and could not, without extensions, be used to explain stepwise or temporary migration. Moreover, it only deals with individual decision to migrate, while it is usually made by an entire household. Such approach is applied in the new household economics (Becker 1965; Lancaster 1966; Willis 1973; Shields and Shields 1989). The theory assumes that all households produce goods and services for their own consumption and that they derive utility from consuming them. Locational differences in availability and prices of production factors can lead to migration, and implications match those of the human capital model. Another way of introducing welfare systems into Sjaastad's model is the expected income hypothesis (Todaro 1969, 1976; Harris and Todaro 1970).¹ In the original model, it is assumed that the probability of migrant finding a job always equals 1. In many cases it is a very unrealistic assumption. In order to solve that problem, the actual income at the destination location is substituted by expected income. Various welfare arrangements influence the expected income by reducing the probability of extreme poverty or by increasing chances for a better-paid employment.

The basic idea behind another strand of literature, called equilibrium models, is that people migrate to maximise the value of their utility and that it may be increased by consuming products and services that are not available in each geographic market (Rosen 1974; Roback 1982, 1988; Graves 1979, 1983; Greenwood 1997). Such goods, referred to as **amenities**, can be anything from nice scenery to a democratic system. One can, however, also consider a generous welfare system, good healthcare or education as a type of amenity. According

to this theory, amenities-rich areas should experience higher immigration rates, which in turn affect wages, rents and prices. The name of the theory comes from the fact that such locational differences are not the cause, but the result of migration and will not be alleviated over time (Bodvarsson and Van den Berg 2009).

Drawing from the neoclassical model of international differences in the average returns to labour and capital, Borjas (1987) presented a model that later became one of the most widely used concepts in immigration economics. In a heterogeneous labour setting, the migration decision depends on the assessment of potential gains from migration, given the distributions of skill and talent in source and destination countries. This allows to analyse migration flows of different types of workers. Observed differences in wage distributions are assumed to be the result of variation in markets and policies between countries and not average skill levels. The decision to migrate thus depends on the mean, variance and covariance of earnings in both countries, and relative migration costs. Variance informs about the dispersion of earnings opportunities in the country, while covariance illustrates the level of skill transferability between states. Intuitively, the migration rate will rise if the destination country's income or degree of skill transferability rises; and fall if source country's income falls or migration costs rise. However, there are some major disadvantages of this model, such as the assumption of irreversibility of migration decision or a single-destination country. In his 1991 paper, Borjas modified his model to include a valuation of skill endowment in each country. This led to the conclusion that migration rates are higher in countries with better education systems.

Apart from migration decision, Borjas' model can be used for modelling immigrant selectivity, or – in other words – who immigrates. If immigrants are different from natives or immobile inhabitants in the source country, we speak of (positive or negative) selection bias in the immigrant flow. Borjas predicts that the immigrants will be negatively self-selected (have below-average skills and wages) if, among others, the dispersion of earnings is higher in the source than in the destination country. Since welfare systems generally contribute to a compression of wage distributions, the immigration into Western welfare states, especially from less developed countries, is expected to consist mostly of individuals with below-average skill levels, who will earn less than natives. This prediction stands in stark opposition to Chiswick (1978), who concluded that immigrants in the United States tend to be relatively more productive

¹ See also: Bhagwati and Srinivasan (1974), Corden and Findlay (1975), Fields (1979), and Calvo (1978).

than natives and thus earn higher wages than native-born Americans. He showed that in the case of constant explicit migration costs among skill groups and higher mean earnings in the destination, those with relatively higher wages face a higher return from migration (defined as the ratio of wage surplus over total cost). In over 15 years since Borjas published his work, there were many attempts to extend his model. One of them, by Chiquiar and Hanson (2005), introduced a skill level-dependant migration cost, and selection with respect to schooling. Their model can be used to explain why Mexican migrants in the United States are modestly, but not very highly educated. The low-skilled part of the population faces relatively high migration cost, while the high-skilled experience a high opportunity cost of migration. Similar model, which additionally accounted for credit constraint, was developed by Orrenius and Zavodny (2005). In that setting, the least skilled cannot afford to cover upfront the costs related to migration, which can be high in case of undocumented border crossing. Another recognizable work is the Clark, Hatton and Williamson, or CHW, model (2007). The authors introduce four types of migration costs: individual-specific, direct, resulting from quantitative restrictions on immigration, and resulting from skill-selective immigration policies. This produces some novel predictions. For example, that migration rate depends on the level of qualitative immigration policy and the variance of schooling in the source country. The model also suggests that a skill-selective policy can have an ambiguous impact on immigration.

3.1.2 The impact of welfare state on migration

Rising numbers of immigrants in the United States in the 1990s caused concern over the cost and sustainability of public assistance. There was a widespread perception that generous welfare programmes can act as **magnets** for immigrants or that high taxation, associated with such benefits, can repel potential contributors to the system. Borjas (1999) addressed the former problem with a model in which, apart from country-specific average wage and return to human capital, every state provides its non-working residents with welfare assistance. He proposed two mechanisms, which can explain how it can affect migrant behaviour: welfare services can attract immigrants who otherwise would not have moved, and discourage from leaving, by acting as a safety net, those immigrants, who might have otherwise returned to their

source countries. Using the United States as an example, Borjas assumed that natives, living in a particular state, face relatively high costs of moving. On the other hand, immigrants already bore the high, fixed cost of migration and can freely choose the state where they want to live, as the additional expense of moving is relatively small. Based on these assumptions, Borjas infers that welfare recipients among new migrants should be clustered in areas that offer the highest welfare benefits and that probability of a recently arrived migrant to receive welfare should be more sensitive than native's to the level of welfare benefits. A simple theoretical framework is used to show that strongest negative selection occurs when the return to capital in the source country is lower than at the destination.

Empirical evidence for welfare magnet hypothesis is inconclusive, but it might be caused by generally accepted and sometimes poorly documented assumptions, such as the role of low-skilled migrants as welfare recipients or narrowing the definition of welfare to employment benefits. Moreover, welfare magnet hypothesis fails to account for the impact institutions have on the size and skill composition of immigrant flows, treats migration decision as independent and individual and does not accommodate for potential differences in attitudes towards risk. Empirical literature does not provide a conclusive answer for whether the welfare magnet hypothesis is valid or not. In European framework, Péridy (2006), Docquier, Lohest and Marfouk (2006), De Giorgi and Pellizari (2009), Razin, Sadka and Suwankiri (2011) or Razin and Wahba (2015) all found some evidence in favour of the proposition while Pedersen *et al.* (2004) or Dustmann, Frattini and Halls (2009) did not. It should be noted, however, that discovered impact was in most cases very moderate and usually applied only to a limited subpopulation of immigrants. Moreover, in case of LDC to MDC migration, the effects of welfare magnet and negative selection may easily be offset by immigration policies of individual countries.

Another aspect of the welfare state impact on immigration is immigrant **skill composition**. The relation is bilateral, and many authors argue that skill composition is one of the most important factors influencing the net fiscal impact of migration and the shape of welfare state. It follows from Borjas' model that the country will receive positively self-selected migrants (with above-average wages in source and host countries) as long as two conditions are met: first, the correlation between the return to skills in the two countries is high and second, the dispersion in the wage distribution is higher in the

host country than in the source country. The opposite holds true for negatively self-selected migration. Razin, Sadka and Suwankiri (2011) present a simple model, which treats the level of welfare generosity and the total volume of migration as exogenous variables in order to focus on the impact of benefits on immigrant skill composition. The analysis is conducted in both policy-controlled and free migration setting. In the former case, the utility-maximising policy, introduced if the median voter is unskilled, allows only skilled migrants to enter the country. If the median voter is skilled, the proportion of skilled immigrants in the inflow is set to a lower value. Moreover, increasing the generosity of the welfare state always leads to higher acceptance rate for skilled migrants. The authors mention three possible reasons for this outcome: first, rise of skilled migrants' share leads to increase in labour productivity and tax revenues, which translate to higher welfare benefits; second, the relative change in supply of skilled labour depresses the skill premium on the labour market; lastly, additional skilled workers ease the fiscal burden of the skilled, decisive voter. In the case of free migration, the increase of welfare generosity and tax burden attracts unskilled migrants and discourages skilled migration. This stems from the fact that the contribution to the welfare system of the skilled migrant is lower than the potential benefit he can receive and the opposite is true for an unskilled migrant. Unfortunately, there are a number of overly simplistic assumptions that undermine the validity of these conclusions. First, authors use a direct and equal benefit (demogrant), which depends solely on the level of taxation, to describe the welfare system. Second, they assume that completely effective migration policy, which determines both the size and the structure of the inflow, is possible to introduce.

Analysis of welfare system impact on immigrants is also associated with integration. Moral hazard is present in any redistributive welfare regime (Okun 1975), but some researchers point at one migrant-specific problem. From the economic, social and moral perspective, it is preferable for immigrants to integrate into the host country's society. However, such assimilation is not costless for the migrants, as it usually consists of learning a new language or adopting to new social norms. The main benefit of such acculturation is the possible absorption into the labour market. But if available welfare benefits are high enough for the difference between potential earned income and transfers to not outweigh aforementioned costs, the rational choice of any migrant will be to live off social benefits (Nannestad 2007). Even

if providing immigrants with social benefits might seem controversial in such setting, some authors argue that 'less' welfare does not necessarily lead to higher levels of immigrant integration. The case of UK shows that in the absence of welfare system, which they can fall back on, immigrants invest in alternative methods of safeguarding against consequences of failure on the labour market, such as family or ethnic networks, which in turn may lead to segregationist tendencies. This suggests that the relationship between welfare and integration, especially social and cultural, could be U-shaped – with too much and too little benefits being detrimental to the process of integration (Putnam 2000).

3.1.3 Other theories

In addition to the theories listed above, there are strands of literature dealing with migration decisions that are beyond the scope of this article, but should nevertheless be mentioned for the completeness of the review. One of such theories is devoted to the role of past migration in the process. Some researches argue that there are psychological, social and information costs, which are likely to be reduced if communities of previous migrants can be found at the destination (Yap 1977; Hugo 1981; Taylor 1986; Massey and España 1987). This greatly improves the efficiency of migration and is usually formally approached by including the size of such network in the utility function or negatively relating it to a risk factor. On the other hand, communities can benefit by assisting newly arrived migrants, for example by increasing their network of potential customers or employees (Stark and Bloom 1985). Another strand of literature, stemming from the human capital approach, involves considering migration as an investment process, undertaken at each stage of the life cycle, rather than a one-time decision (Polachek and Horvath 1977). This is justified with an observation – that agents' demand for locational characteristics changes as they move through the life cycle. In the case of international migration this idea has been used to show how availability of non-tradable goods (free society, public goods supply) affects migration decisions. Another approach models the decision of a household to send one of the family members abroad to work as a **portfolio diversification** decision (Stark and Levhari 1982; Stark 1984; Katz and Stark 1986). Migration is in this context used to hedge against unsure labour market at home, which is especially important for the low-income families in the less developed countries,

which cannot use their savings, unemployment insurance or welfare programs in the same way. According to New Economics of Labour Migration (NELM), remittances should be modelled as an intertemporal contractual arrangements, rather than altruistic gestures. It also suggests that migration decision should not be treated as an individual, independent optimisation, but a mutual interdependence optimisation process (Stark and Bloom 1985). Lastly, a more recent development is focused on the analysis of migration duration and immigrant behaviour. Dustmann (1999; 2003) models temporary and settlement migration as conceptually different forms, resulting in different approaches to market labour integration and investment in human capital. Temporary migration can also be a method of overcoming credit constraints, which leads to the conclusion that economic incentives can encourage return migration (Mesnard 2004).

3.2 Economic and welfare effects of migration

A large part of available literature concerning the welfare impact of immigration can be assigned to either of two frameworks. The first strand of research includes the assessment of the fiscal impact of immigration on the host country in terms of welfare state sustainability and its shape. Majority of the research is based both on fiscal contribution calculations or general equilibrium models. The former type of analysis provides a specific estimate of fiscal impact of immigration but fails to include indirect effects arising from introducing immigrants into the economy. The latter is based on macroeconomic modelling, and thus can account for indirect effects, but is heavily dependent on assumptions regarding the future behaviour of migrants. The second framework deals with the impact of immigration on welfare of natives in host and source countries, controlling for social class or skill level. Most of the work in this area is based on general equilibrium models, with natives and immigrants maximising their utility under specific constraints. The impact on wages and income, in presence of taxation and benefits, stands in the centre of attention.

3.2.1 The impact of migration on the economy and welfare state

The first strand of literature, devoted to economic effects of migration, concentrates on the impact of immigration on economy of the host country with redistributive policies, and sustainability and shape of its welfare state. Wildasin (1994) presented a simple but powerful model of migration between two countries, induced by wage differential, in presence of redistribution policies. His analysis is based on **income distribution frontiers**, which represent available Pareto-optimal allocations of income between non-mobile capital owners and mobile workers. He shows that in a no-migration scenario any point on a straight-line frontier can be attained with help of redistribution policies. It is then shown that opening the borders changes the income distribution frontier into a curve, with some parts above and some below the original line. Achieving a Pareto-improvement in a country with above-average wages, however, requires the subsidy for the workers to be negative, i.e. resident workers must be taxed to provide transfer payments to capital holders. In the opposite case, higher wages and subsidies attract additional workers, which in turn lowers the wage on the host-country labour market. This suggests that immigration is detrimental to native workers if immigrants are net beneficiaries of welfare programmes. Wildasin (1994) also considered a possibility of transfer payments, made by the host country to non-resident mobile workers in their country of origin. He showed that such transfers can limit immigration and increase welfare of resident workers in the open border case, but only if the initial policy assumed positive subsidies.

Another model, developed by Wellisch and Wildasin (1996), is used to analyse the impact of international migration on the federation of two states with common labour and capital markets, and redistributive policies. The authors assume that changes in fiscal treatment of factors affect their equilibrium allocations in both jurisdictions. Although theoretically only citizens of the states in this union can move across borders, another assumption is that only the total amount of immigration into the system matters for the equilibrium outcome, which is justified with the lack of border control. Moreover, each state is allowed to form its own tax and transfer policies in response to changing immigration rates and policies in the other country. Wellisch and Wildasin (1996) show that the Nash equilibrium involves no taxes or subsidies to capital and that each state has incentives to limit its

transfers to mobile workers if they are net beneficiaries of the system. The authors also note that immigration impacts the steady state of the system in several ways. Wages change as an effect of increased competition on the labour market, which in turn affects return to capital and its allocation. Additional impact stems from the fiscal standing of the immigrants. Finally, varying number of workers in the economy can change the optimal tax and transfer decisions. Using their model, Wellish and Wildasin (1996) show that immigration can increase the welfare of the federation only if mobile workers are net contributors to the fiscal system. Even in such case, however, immigration is detrimental to the native workforce in terms of income. Moreover, if immigrants are net fiscal burden to the state, it has incentive to set its immigration policy to zero. Finally, the authors note that any changes in policies generate external effects for the entire federation, which can be offset in terms of welfare by a central redistributive government.

Wellish and Waltz (1998) investigated the preference of more developed countries for free trade, rather than unrestricted movement of labour, even though these integration regimes are substitutes according to the Heckscher–Ohlin model. The authors claim that this discrepancy is caused by the presence of redistributive welfare systems. They note that the main difference between free trade and free labour movement, which both affect factor returns in relevant countries, is that the latter impacts the international distribution of unskilled workforce and welfare recipients. Using a two-country H–O model, the authors show that the level of welfare in the relatively richer state decreases in the free migration scenario compared to the free trade case, as a result of direct labour import, when both countries adopt redistributive policies. The opposite is true for the relatively poorer state, because it is now less expensive to redistribute wealth to the remaining workforce. Moreover, they suggest that adopting uncoordinated welfare policy causes the welfare in both countries to decrease. Suboptimally low levels of benefits are chosen, in expectation that increasing the generosity will attract additional workers and make the redistribution more expensive.

Storesletten (2000) proposed a different approach, which he described as an **accounting exercise**. He starts by proposing a general equilibrium model with heterogeneous labour (an overlapping generations model), in order to capture the interdependence of wages, return rates and tax income. But rather than trying to solve it analytically and show how immigration affects the welfare of natives, he calibrates it and calculates the

fiscal position of immigrants conditional on their characteristics. The main goal of the paper is to determine whether a change in immigration policy can resolve the fiscal problems arising due to the population aging in the United States. Storesletten (2000) accounts for the dynamic evolution of immigrant fiscal standing, including the cost associated with their potential offspring and the time of arrival into the host country. Such approach has many advantages over the static analysis, where the fiscal effects of immigration are calculated as a simple difference between all contributions into the public coffers from foreign citizens, and the welfare costs attributable to them. Static calculations are biased for at least two reasons. First, the current size and composition of migrant population depends on past formulation processes (e.g. return migration, immigrant policies, colonial history), and not necessarily reflect the characteristics of current immigration flows. Therefore, it might be difficult to justify the use of such calculations for predictive purposes. Second, the static approach does not account for the effect of future generations of immigrants or change in the institutional setting (e.g. demographic decline). The results presented by Storesletten (2000) take the form of a minimal annual immigrant inflow, broken down by age group and skill level, required to satisfy the state budget constraint. The author finds that accepting an appropriate amount of high-skilled 25- to 54-year-olds or medium skilled 25- to 49-year-olds can solve US fiscal problems. The fiscal effect of low-skilled migration is always negative. The group, which causes the smallest increase in the ratio of immigrants to natives and thus could be used by the government to reduce the fiscal burden, are, according to Storesletten, highly-skilled 40- to 44-year-olds (0.61% or 1.6 mil annually). Their net present value (NPV) equals as much as \$177,000, compared to –\$88,000 of a new-born native. However, such number would be difficult to achieve, as only about 160,000 highly-skilled migrants of age 25 to 49 arrive in the United States every year and most of them bring their families along. Storesletten (2000) concludes that accepting a representative legal immigrant translates to a marginal gain of \$7,400 to the US government. After repeating his analysis for Sweden (Storesletten 2003), he finds a less favourable effect of immigration. The main reason for such outcome were lower labour market integration and economic assimilation of subsequent generations.

Another dynamic analysis, which additionally controlled for the institutional setting of the destination country, was presented by Chand and Paldam (2004).

The authors used the overlapping generations model to show the evolution of migrants' economic integration into the host economy. The rate of this process was measured by the **absorption function** (λ), which changes its value from 0 at the moment of immigration to 1, when the immigrant receives the same wage as a native worker. Another important curve is the **social subsidy function** (ρ), which returns the proportion of the benefit, paid out as long as $\lambda < 1$, to the native's wage. The analysis presented in the paper consists of calculating the NPV of migration for both immigrants and natives at different points in time and in varying institutional settings, which in turn impact the levels of absorption and social subsidy functions. Three polar cases of institutional frameworks were analysed: guest-worker, Dubai-like society, immigrant, US-like society and a tax-based, welfare state of the Nordic type. The authors showed that the guest-worker case is closest to harvesting all potential gains from migration, mainly because of extremely fast absorption. Immigration is formally forbidden in Dubai, but contract workers are allowed to come if they find a **sponsor** employer in advance. The US case realises slightly lower gains, but low and insurance-based social security means that immigrants have to find employment soon after arrival, which translates to steep rising absorption function. In the last, Nordic case the result of immigration is negative. The social benefit is high and paid out of the tax revenue, and all legally accepted immigrants are eligible for social benefits on a par with the natives. This means that the incentive to invest in human capital or even look for employment is significantly lowered. Moreover, the highest benefit is offered at the low end of the income scale, as its goal is to equalise income. This causes adverse selection mechanism, because the lowest educated immigrants have the most to gain from accessing Nordic states. To conclude, Chand and Paldam (2004) claim that immigration is only beneficial in certain institutional settings, and that a generous welfare state causes the natives to bear the costs of this process.

Coleman and Rowthorn (2004) present a comprehensive analysis of the impact immigration has on the economy and the welfare state. Using the United Kingdom as an example, they discuss all common arguments in favour of migration. The authors point to the fact, that immigration does not lead to a positive supply shock on the labour market, which eventually translates to the GDP growth, because the immigrants do not perform as well as their native counterparts in terms of employment and productivity and might displace cur-

rently employed workers. Moreover, the paper provides a number of immigration fiscal effect estimates, which suggest that – whether positive or negative – it is usually smaller than 1% of the GDP. In the case of United States, Borjas (1994), Huddle (1993), Passel and Clark (1994), Lee and Miller (1998, 2000), Storesletten (2000) and Auerbach and Oreopoulos (2000) find the fiscal effect of migration to equal between -0.6% and 1.5% of GDP. In European context, Weber and Straubhaar (1996), Ekberg (1999), Wadensjö (2000) and Roodenburg, Euwals, and ter Rele (2003) obtain similar results. In a more recent study, Dustmann and Frattini (2014) calculate the net contribution of immigrants to the UK economy in the last 20 years and arrive at a 'substantial and positive' result. However, some studies show a strong impact of business cycle on immigrant labour performance, and thus on their net fiscal impact (Gott and Johnston 2002; Sriskandarajah, Cooley and Reed 2005), which suggest that the choice of reference year might influence the results.

Analyses closely tied to such accounting exercises are devoted to explaining observable differences in welfare dependency between immigrants and natives. Empirical work suggests that such outcome is a result of structural differences between natives and immigrants and tend to be less visible when controlling for such characteristics as age or labour force status. Remaining discrepancy, often referred to as **residual welfare dependency**, can be explained by a number of factors, such as self-selection, discriminatory practices, network effects or relatively lower wages (Brücker *et al.* 2002). Nannestad (2004) suggests that barriers in access to labour market play an important role in shaping immigrant welfare dependency in Denmark. Similarly, Hansen and Lofstrom (2009) point to the large proportion of refugees in Swedish immigrant population as a reason for a higher dependency. In the case of Germany, Riphahn *et al.* (2010) conclude that higher dependency is not tied to the immigrant status, but the differences in socio-demographic differences between immigrants and natives. Similar results were obtained for United States (Garvey *et al.* 2002). Moreover, some studies show that less favourable fiscal position of immigrants is mostly due to their lower social security contributions and not higher welfare dependency (OECD 2013). This result is corroborated by Barrett and Maitre (2011), who look at the differences in use of welfare benefits between natives and immigrants in EU countries and arrive at the conclusion that, when all components of social security are included, there is little evidence on higher welfare dependence.

A paper published by Boeri (2010) looks both into welfare effects of immigration and its perceptions. A simple static model of interactions between immigrants, welfare access and taxation is developed, in which immigrants can be either skilled or unskilled, latter of which can also become unemployed. The model includes an additional parameter, which captures the residual dependency of immigrants. The fiscal effects of immigration into the state with redistributive policies is divided by Boeri (2010) into two parts. **Benefit externality** is defined as the change of the direct and tax-financed unemployment benefit, received by the natives, in response to increasing immigrant share in the population. The derivative is calculated under the assumption that the tax rate remains unchanged. The value of this externality depends on the number and average net fiscal position of migrants, which in turn is a function of their skill composition, employment status and welfare dependency. **Fiscal externality**, on the other hand, is the tax rate adjustment, which ensures that the benefit stays constant when social spending increases as a result of immigration. Once again, its sign is determined by the net fiscal position of migrants and their dependency term. Boeri (2010) notes that because the population of all tax-payers is much larger than that of unemployed natives, the per capita fiscal externality is expected to be smaller in value than the benefit externality. The author also accounts for the endogeneity of immigrant skill composition, drawing from Borjas (1999). He shows that, according to his model, increase in tax rates in the country of destination negatively affects the share of skilled workers in the immigrant population, which unambiguously decreases social transfers. This result is unconditional on the net fiscal position of migrants, which means that immigration can negatively affect benefits received by the native population even if immigrants are net contributors to the redistribution system. In the modelled system of dependencies, increase in immigration, through the change of the tax rate mechanism, impacts the skill composition of migrants and, finally, the level of benefits. In the following empirical analysis, Boeri (2010) assesses the net fiscal position of migrants using EU-SILC data and arrives at the conclusion that in most EU countries migrants contribute less to tax revenues and social security than their share in the population. They are also overrepresented among recipients of non-contributory transfers. Overall, however, immigrants are more likely to be net contributors than beneficiaries of the redistributive systems. This is especially true in case of countries who only recently expe-

rienced large immigrant flows. Finally, estimates of adverse selection mechanisms show that higher social expenditure is generally associated with a lower skill composition of immigration.

In conclusion, the assessment of immigration impact on both economy and the welfare state of the host country is heavily dependent on approach used (static or dynamic) and assumptions made regarding the length of stay, type of migration and labour market integration (in first and subsequent generations). Most empirical analyses suggest that, either positive or negative, this effect is very small, and in large part depends on: migrant-entry category, education level, age profile, labour market integration and institutional setting (OECD 2013). It must be noted however, that the two last factors are often closely related, as design of immigration policy can hinder labour market absorption. A widely spread belief about the strong and negative impact of immigration on the welfare state can be, among others, a result of over-representation of immigrants in the most 'conspicuous' areas of welfare, such as unemployment benefits or children allowances. Given their age structure and limited eligibility, as well as potential return migration, immigrants are rarely beneficiaries of redistributive systems. Moreover, immigrants often do not rely heavily on pensions and health care, which constitute the majority of social expenditure in most welfare states (Fargues *et al.* 2014). A comprehensive review of migration literature presented by Kaczmarczyk (2013) leads to the conclusion that the main factor responsible for the direction and force of the impact, that immigration has on host economies, is the immigrant fiscal position (net contribution to the public coffers). However, available literature does not offer an unambiguous answer to the question regarding its determinants.

3.2.2 The impact of immigration on (social) welfare

Similar, yet clearly distinct strand of literature, devoted to the impact of immigration, concentrates on social welfare or, in other terms, on the impact that welfare systems have on distribution of gains from migration between natives and migrants. The research into welfare effects of migration originated in the area of trade theory. For a number of years, the impact of emigration on the population **left behind** in the source country, especially the problem of **brain drain**, remained in the centre of attention. Berry and Soligo (1969) were one of the first to formally address this issue. They defined the welfare

gain (loss) as a net increase (decrease) of non-migrants' income and shown that in almost all cases, under classical market assumptions, emigration harms the non-mobile population through the price mechanism. In a setting with both traded and non-traded goods, Rivera-Batiz (1982), arrived at a similar conclusion. The hypothesis was revisited by Wong (1985) who, using an extended m -good, n -factor model, additionally noted that migration is beneficial to the natives in the destination country. This result was later corroborated in Quibria (1988), using a different modelling technique. However, in his later paper, Quibria (1997) showed that if the model is extended to include remittances sent by emigrants, the welfare of non-mobile natives does not have to decrease. Djajić (1998) examined the impact of emigration on the welfare of non-mobile residents of source country in the presence of foreign capital and noted that the negative effect can be reversed. Much of the more recent literature is devoted to the effects of immigration on the welfare of natives in the host country. Departing from the classical market assumption, Fuest and Thum (1999) assessed the impact of immigration in the presence of unions and wage bargaining. They concluded that, conditional on wage elasticity in the competitive sector and on the size of migrant population, immigration can be beneficial to the native population.

In order to assess welfare impact of immigration in the presence of a welfare state, Michael (2003) constructed a general equilibrium model, in which source and host countries produce traded and non-traded goods, collect taxes and use them to distribute equal benefits to all individuals, who possess either capital or labour. Only workers are assumed to be mobile. He noted that in the absence of capital mobility immigration is detrimental to individuals in the host country and beneficial to individuals remaining in the source country, and that this effect is significantly alleviated or even reversed in the opposite case. Michael and Hatzipanayotou (2001) used these results to develop a model, showing how changing government tax policy affects the impact of migration on the social welfare in host and source countries. The novelty of their approach lies in the assumption that public spending can be financed by imposing a consumption tax or import tariff, instead of lump-sum taxes, predominantly used in the literature; and that it can be allocated either for non-congestible public good provision or equally distributed benefits. In this framework they analyse five scenarios, with varying sources of budget revenues and methods of its spending. They find that in almost all cases international

migration reduces social welfare in the source country. The effect in the host country can be either positive or negative and in many cases is ambiguous. Finally, they present a Heckscher–Ohlin model, which is used to put those general conclusions in a real-world perspective of LDC to MDC migration. The authors show that, under plausible assumptions, immigration reduces welfare in the host and increases it in the source country if revenues from consumption taxes are used to fund equally distributed benefits. However, if budget spending is financed by tariffs, the effect on the source country will be reversed. Opposite results are obtained for public good provision, for all types of taxes.

Djajić (2009) developed a model under similar assumptions, additionally allowing for temporary, apart from permanent, migration. He found that natives benefit more from temporary than from permanent migration, if they are more **functionally similar** to permanent migrants. Similarity is characterised in terms of consumption behaviour, remittances flow and capital ownership. Under such assumptions, the arrival of a permanent migrant can even lower the welfare of natives. The author notes, however, that in the presence of unemployment, capital-bringing permanent immigrants can be beneficial for native population. In their joint paper, Djajić and Michael (2009) discuss guest-worker, and therefore temporary, migration and find a Nash equilibrium in a game played by the source and host countries. The model is used to derive an optimal duration of a guest-worker permit. They find that, from the destination country perspective, the duration of temporary migration should be as long as possible.

Another paper by Michael (2011) is devoted to the welfare impact of immigration in terms of the skill distribution. He allows for skilled and unskilled labour in the model and shows that an inflow of unskilled workers reduces the social welfare of the host country if the domestic supply of all other factors of production remains fixed. An opposite holds true for skilled migration. The final conclusions, about the effect on social welfare in case of free capital and labour mobility, depend on the relation of skilled and unskilled labour. If they are general equilibrium complements, a shift in skill distribution towards unskilled labour will increase social welfare in the host country. Conversely, if they are substitutes, similar shift may cause the social welfare to decrease. This paradox is explained by varying returns to production factors – which in turn cause movements of capital that affect negatively the welfare of natives.

In conclusion, theoretical models, devoted to welfare impact of migration do not provide an unambiguous answer to the question about how migration affects natives in the host and source countries. Moreover, the presented results are strongly conditional on assumptions, which can be considered conservative or even unrealistic. Many authors accept as a fact, that unskilled migrants are net beneficiaries of welfare programmes. It is also commonly assumed that immigrant wage depends strictly on their qualifications, ignoring the phenomena of **wage gap** and discrimination. In addition, assumptions about instant and full eligibility of all immigrants for welfare benefits are far from truth, even in case of generous, Western European states. This means that such results have to be treated with caution, especially by policymakers, and shows the need for advanced empirical research in this area.

3.2.3 The impact of migration on the public support for the welfare state

The welfare state is based on solidarity of its participants and is not possible without the belief in expected reciprocity among them. Contributors must be aware that the society will support them when necessary, in order to be willing to support others. The system of such mutual buttress normally takes many years to evolve and usually requires that there are no distinct subgroups that systematically need more support than others. However, it comes under considerable pressure when conspicuous groups of immigrants arrive in the country, benefit from the welfare state and demonstrate little good will with regard to integration, both social and economic. Additionally, if the perceived or actual economic impact of immigration on the welfare states is negative, the support for generous welfare systems might weaken. As such systems are politically determined, it is important to answer the question how migration affects the social security systems in receiving countries. The following literature describes the process of immigration policy formation, with different assumptions concerning the welfare state. Two approaches can be easily distinguished: social security consisting of inter-generational (based on age) or intra-generational (based on skill) redistribution.

The literature on the political economy of immigration policy is relatively young but growing. One of the first references is the paper by Benhabib (1996). In his model, rational but myopic agents (not taking into

consideration how their decisions affect future periods), heterogeneous with respect to their capital endowment, take a vote on immigration policy. Their income changes as the inflow of additional workers affects the capital-labour ratio in the economy. The population will be thus polarised: rich individuals will prefer restricted, capital-poor immigration; the poor, on the other hand, would like to restrict migration to the right-hand side of the income distribution. Since the adopted policy depends on the preference of the median, native voter in the post-migration income distribution, Benhabib (1996) predicts its cyclical behaviour. When the median voter holds relatively small capital stock, capital-rich immigration, which increases his income, will be welcomed (assuming factor complementarity). Conversely, when the initial income distribution is such that the median voter is endowed with relatively large capital, capital-poor immigration will be preferred. Since the author assumes that immigrants obtain voting rights, immigration itself affects income distribution of the voters. This in turn causes the chosen policy to swing from periods of low, selective immigration targeted at capital-rich newcomers, when the median voter holds little capital, to shorter periods of intensive, capital-poor migration after the income distribution shifted to the right.

Ortega (2004) presents a model in which immigration and income redistribution policies are endogenous. The agents choose them in each period by majority vote, taking into account the possible impact of their choice on the labour market outcomes and skill distribution in the future. Both natives and immigrants can be either skilled or unskilled, which determines their income (skilled workers are always richer than the unskilled) and individual preferences towards the generosity of the welfare state (skilled workers vote for no redistribution, unskilled vote for maximal redistribution), while the proportion of the skilled natives grows in time. Additionally, it is assumed that the wages of each group can be increased by admitting migrants with opposite skill levels. The immigrants become citizens after one period and gain a voting right. This leads to a trade-off between the potential increase of individual's wage and the size of the population voting in accordance with his interests in the future. Ortega begins by noting that with no migration, the welfare state will be abolished once the majority of the population becomes skilled. Analysing the sustainability of the welfare state, he finds that the unskilled majority might use immigration policy to offset the increasing proportion of skilled workers in the economy. By admitting a certain number of unskilled

migrants, they maintain the political support for redistribution. Thus, he predicts an endogenous shift from an unrestricted skilled migration when the country consists of mostly unskilled workers, to a restricted unskilled migration, when the proportion of the skilled converges to 50%. This means that the poorer workers are not willing to give up future redistribution in the name of a temporary increase in wages. What's more, if the skilled constitute a majority in the beginning, they will adopt the same policy in the equilibrium. The reasoning is similar – rich workers give up a portion of increase in consumption today in order to keep the redistribution at minimum in the future. The main conclusion from the analysis is that the equilibrium immigration policy will control both the size and the skill composition of the inflow. Moreover, this approach might explain why immigration policies are much more restrictive in the EU countries, which are characterised by a generous welfare state, than in the United States. Another insight is that the size of the restricted immigrant flow in the equilibrium positively depends on the rate of skill growth in the economy. However, the idea that the voters might use immigration policy as an instrument to gain control over redistribution policy seems rather unrealistic.

In a similar, dynamic general equilibrium framework, Dolmas and Huffman (2004) analyse the impact of immigration on redistribution and migration policies. In their model, the natives, who differ only with respect to capital endowment, choose the immigrant quota in the first period. Immigrants arrive in the host country in the second period, in which the fiscal policy is chosen. In the third and last period, taxes and benefits are used to redistribute a portion of the income. All choices are assumed to be made according to the majority vote, which means that the final outcome depends on the preferences of the median voter. While choosing the immigration policy, natives must consider how their choices will affect the distribution of income in subsequent periods. In the benchmark model, there is no capital mobility and immigrants are only endowed with labour. Production takes place in the last two periods, for which all agents, who provide one unit of labour inelastically, receive wages. All capital is remunerated according to the interest rate. In the basic scenario, the tax rate increases as the number of admitted migrants raises. This result is conditional on the assumption that immigrants do not own any capital and that the inequality among natives is sufficiently large. Intuitively, if the proportion of voters in the left-hand side of the income distribution increases, we can expect the tax chosen in the second period to increase.

However, additional migrants change the capital–labour ratio and subsequently the factor rewards, which means that the relatively poor median voter, who relies predominantly on labour income, is forced to consume less. His utility is thus decreasing with the number of immigrants, which translates to a 'zero immigration' policy in the equilibrium. Dolmas and Huffman (2004) note that if immigrants have even a small amount of capital, or if the income inequality among the host population is small, the resulting migration policy will be more liberal. In the case of capital mobility, an inflow of foreign investment alleviates the changes in factor rewards, which causes all voters to be indifferent about the level of immigration. The authors go on to show how the result changes when the immigrants are not allowed to vote, do not receive the transfer or are endowed with large amounts of capital. In the last two cases the median voter will opt for the maximal immigration quota and higher level of redistribution. Given these results, the authors conclude that the visible opposition to immigration in the developed economies can stem from natives' reluctance to provide immigrants with benefits rather than from disapproval of immigration per se.

Using even more advanced, theoretical setting, Sand and Razin (2007) focus on the sustainability of the welfare state in an ageing society and open economy. The welfare state takes form of a pay-as-you-go social security system, financed by payroll taxes. Agents live for two periods. It is assumed that the immigrants enter the country when they are young and gain a voting right in the second period of their lives. Both tax and migration policy are endogenous and jointly determined in every period. Immigration affects the age structure of the host economy and thus change current and future dependency ratios, which is taken under consideration by the agents. Natives and immigrants differ only with respect to fertility – they are perfectly substitutable on the labour market, have the same preferences and are fully integrated into the security system on arrival. The old prefer maximum immigration quotas and a 'Laffer point' (revenue-maximising) tax rate, while the young always vote for no taxation. The preferences of the latter concerning immigration are ambiguous, because it impacts both next-period level of benefits and the size of young population. As a consequence, they choose a maximal level of immigration, which ensures that the old will become a majority in the next period. The authors list three possible outcomes in the model: first, when growth rates of natives and immigrants are positive, in which case the young are always in majority;

second, when both growth rates are negative, and the decisive voter is always old; lastly, when the sum of the growth rates is positive but native population shrinks. In the last case, two possible equilibria can be found: one characterised by **demographic switching**, in which young decisive voter limits the flow of immigrants in order to ensure that the old will constitute a majority in the next period. Next, he admits the maximal number of immigrants, in order to maximise the benefit he receives when he is old; and a **demographic steady** one, where the young remain the majority forever and maximum number of immigrants are admitted in each period. The second case requires capital markets and savings decisions to be introduced in the model, which creates an additional channel of intertemporal influence. The main conclusion is that a decreasing growth rate of the native population, equivalent to the ageing of the society, translates to a more liberal immigration policy, no matter which generation constitutes the majority.

The above framework is further developed in Razin, Sadka and Suwankiri (2011), where, for the first time, both inter-generational and intra-generational redistribution is included in the model. The authors distinguish three groups: skilled and unskilled workers, and retirees. The state imposes proportional tax on working population, which is used to finance a demogrant. This means that only skilled workers are net contributors to the security system. The authors analyse two cases: voting in accordance with preferences (sincere voting) and strategic voting, where agents maximise their utility. In the first case, the outcome depends on the group, which constitutes the majority. The old prefer to let in as many skilled migrants as possible, with tax set at the Laffer point. The unskilled workers vote for a lower tax, because they themselves have to pay it, and a maximal level of skilled migration, which still makes them the majority group when they retire. Conversely, the preferences of skilled workers include no taxation. With respect to immigration policy, they vote in the same way as the unskilled group, unless the size of the skilled population exceeds a certain threshold. Beyond that point, it is necessary to curb its size if the current majority wants to preserve its status in the next period. To this end, the policy includes an increase of unskilled immigration to weight down the growth rate of the skilled group. In the strategic voting framework, the unskilled profile is a compromise between the extreme cases of the old and the skilled. Thus, the model predicts that those groups will vote in accordance with the unskilled preferences when they themselves do not constitute a majority. On

the other hand, if the unskilled must choose between conflicting profiles, they should choose to vote like the old, which grants them some level of redistribution. However, if the skilled group is big enough, and such decision would put the power in hands of the skilled in the next period, or if the tax proposed by the old is much larger than the unskilled case, they should vote according to the skilled group preferences. In conclusion, the model predicts that the immigration policy should be predominantly based on skill level and that redistribution will be present as long as the decisive voter comes from a group, which is a net beneficiary of the welfare state.

Cohen, Razin and Sadka (2009) develop a simple model of the welfare state, in which the extent of redistribution is determined by majority voting. They assume that volume and skill composition of migration is exogenous and analyse how a change in those parameters affects the redistributive policy in the host country. The outcome of the vote is attributed to the decision of the median voter or more generally – to his skill level. The authors hypothesise, that since skilled (unskilled) immigrants typically contribute more (less) to the welfare state than they take out from it, the generosity of the redistribution system, shaped by the voters, should be positively correlated with immigrant skill distribution. Using the model, they find that unskilled workers prefer a more generous system than the skilled, and both types opt for more redistribution when the skill composition of immigrants shifts upwards. In an empirical analysis, this hypothesis is confirmed using a two-stage least squares approach, incorporated to tackle the problem of endogeneity. The results suggest that skilled immigration has a positive effect on welfare spending and the opposite is true for an inflow of unskilled migrants.

Razin, Sadka and Suwankiri (2011), apart from the aforementioned model, also present a system of equations that illustrates the bilateral causality of welfare systems and immigrant skill composition. They assume that both the generosity of the welfare state and the shape of immigration policy (in a policy-controlled migration regime) are chosen in a majority vote and look for possible equilibrium. The case is much easier to settle in the controlled migration scenario, because the citizens of the host country decide on all three policy parameters: tax rate, immigration quota and the skill composition. The authors note that if the median voter is unskilled, only skilled migrants will be accepted and no qualitative limitations will be enforced. Additionally, the tax rate will be higher than in the scenario in which the median voter is

a skilled worker. In the free migration set-up, the voters decide on the generosity of welfare state, knowing that they face an upward-sloping supply curve of potential immigrants. This analysis, however, fails to account for the impact that accepting large numbers of immigrants today has on policy in the future.

Frameworks presented above suggest a significant impact of immigration on the support for the welfare state. Empirical results show that it is true in the case of the United States, where increasing ethnic diversity was found responsible for undermining social trust and solidarity (Putnam 2000). However, such result stems from the racial tensions and prejudices, especially in the states with high shares of African Americans (Alesina and Glaeser 2004). Studies in Europe suggest that attitudes towards redistribution are shaped mostly by the size, diversity and skill level of immigrants, and not their ethnicity (Alesina, Harnoss and Rapoport 2014). Gaston and Rajaguru (2013) test for impact of immigration on the generosity of the welfare state in 25 OECD states and conclude that, contrary to the predictions made in the theoretical models, an increase of immigration leads to higher social spending.

4 Summary and conclusions

Milton Friedman (1978) once famously stated that free immigration and unrestricted welfare benefits cannot coexist. His argument was based on the claim that, once the borders are opened, there is nothing that can stop people from taking advantage of the most generous of redistributive systems. Although recent decades were characterised by the mass migration, such approach seems too simplistic, which common markets like the European Union appear to prove. Opening borders between Poland and Germany or Hungary and Austria did not cause, apart from the initial shock, serious drainage of the source countries populations. The literature review presented in this paper does not contain an unambiguous answer to the question about the direction and force of the impact, that international migration has on the economies and welfare systems in both destination and source countries. However, available research allows to draw conclusions, which can be summarised in following points:

- Research into the relationship of migration and welfare distinguishes between social welfare and the welfare state, with little common ground.

- Different approaches and methodologies are used to construct typologies of the welfare states, but in most cases both generosity and availability of welfare arrangements are taken into consideration.
- Economic theories of migration decision are predominantly based on differences in return to labour or availability of amenities. Most of them account for migration costs, transferability of skills and distribution of wages in the host country, which can be affected by the presence of welfare systems.
- Presence of negative selection in many models suggests that immigration into the MDCs will consist mostly of the lower-skilled, because such destination countries are characterised by high mean and low dispersion of wages, which is partially an effect of developed redistributive systems.
- A generous welfare system might serve as an incentive (*magnet*) to move or discourage immigrants from returning when they fail on the labour market. It can also affect the skill composition of migrants and their propensity to integrate. However, empirical evidence in this area is inconclusive.
- According to neoclassical economics, immigration has a positive impact on the welfare of natives in the host country. Based on trade theory, an increase in endowment of production factor should increase GDP and reduce inflation. The effect on the welfare in the origin country is expected to be negative, although it can be offset when remittances are taken into consideration.
- The effect of immigration on the welfare state depends on a number of factors, such as institutional setting, capital mobility and the composition of immigrant population (in terms of age, skill and category). However, empirical research suggests that such effect, either positive or negative, is likely to be small, not exceeding 2% of GDP.
- Welfare dependency of immigrants is higher than natives in some areas, but much lower in others, amounting to rather positive fiscal standing. Empirical evidence shows that a negative result stems rather from their lower contributions than higher dependency.
- Initial research on welfare effect of immigration suggested a positive impact on host and a negative on source population. In the presence of redistributive policies, however, immigration is expected to lower the level of welfare in the destination country. Even if newcomers are net contributors to the welfare system, their presence can be detrimental to natives

in terms of income. However, the results are heavily dependent on assumptions made.

- Conclusions from dynamic voting models vary, but in most cases policies set for a large inflow of skilled immigrants should be expected when the skill level of natives is predominantly low. Myopia or strategic voting can cause the immigration policy to behave in a cyclical way. Depending on the assumptions, immigration can either cause the welfare generosity to increase or decrease, even if immigrants contribute more than they take out.

Even if an unequivocal answer was present in the literature, it must be noted that current research ignores some of the crucial issues concerning immigration and the welfare state. First, apart from initial work on the welfare implications of brain drain or remittances, the relationship of the redistributive policies in the origin country and immigration is not considered in the discussed papers. Additionally, most of the theoretical modelling reduces the wide range of welfare benefits and services – for technical reasons – to either unemployment benefits or unconditional demogants. The latter seems the most unreasonable, since it is the concern about the possible exploitation of welfare systems by the professionally inactive migrants that seems to be the biggest problem in the current political debate. Lastly, present research fails to correctly define the measure of welfare generosity. The level of payments, used in most studies, cannot be used as a sole determinant, as indicated in the first section of this paper. Based on the review presented above, further research, both theoretical and empirical, is necessary in the area of migration and welfare. Present literature allows to list some of the challenges, which need to be resolved. First, it is vital to precisely define the boundaries of welfare state and quantify its generosity. Without a common measure, it is difficult to analyse the variability of outcomes in different countries. Second, the problem of endogeneity between migration and welfare provisions must always be accounted for. Immigration affects the distribution of wealth, factor endowments and tax revenue, but is in the same time affected by the level and availability of welfare services. Failing to include this bilateral relationship in research must lead to questionable results. Lastly, numerous strands of literature, devoted to this subject, show that there is a broad spectrum of factors, such as existence of social networks or immigration policies, which affect migration decisions and are difficult to control.

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