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Does the calculation hold? The fiscal balance of migration to Denmark and Germany

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The Fiscal Balance of Migration to Denmark and Germany**

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Klaus F. Zimmermann

July 2014

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ABSTRACT

Does the Calculation Hold? The Fiscal Balance of Migration to Denmark and Germany*

Calculating the net fiscal effects of immigration not just for a fiscal year but over the lifespan of immigrant cohorts accentuates the assets and deficits in migration and integration policies and their long-term potential. The less national policies concentrate on a labor migrant selection process according to economic criteria, the higher the risk of generating economic losses or only a reduced surplus. A country comparison of net tax payments and generational accounts for migrants and natives reveals even more clearly that the right mix of migrants will give the best chance to maximize positive and sustainable net fiscal effects to the benefit of society. Similar socio-economic frameworks – as in the western welfare states of Denmark and Germany showcased in this paper – may still result in substantially different economic outcomes of migration. Traditional immigration countries with a long experience in selecting migrants are nonetheless confronted with the need to evaluate and adapt their policies. They may also learn from the results of net fiscal balancing.

JEL Classification: F22, J61, E61, E62

Keywords: socio-economic effects of migration, generational accounting,
immigrant selection, integration

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* This paper provides a slightly amended English but not updated version of the research findings originally presented in Zimmermann/Hinte (2005), chapter 6. The book chapter is substantially based on studies by Nielsen (2004) and Wadensjö/Gerdes (2004) and presents comprehensive calculations provided by Holger Bonin. The chapter (and now this English version) for the first time offered an in-depth country-comparative analysis of the fiscal net effects of migration into two exemplary western welfare states at the end of the last century and in the early 2000s. The analysis serves as a showcase demonstrating the necessity to implement active labor migration strategies that allow for sustainable positive fiscal net effects in times of shrinking human capital and aging societies. The authors thank Holger Bonin for providing the original data.

DOES THE CALCULATION HOLD? THE FISCAL BALANCE OF MIGRATION TO DENMARK AND GERMANY

HOLGER HINTE

KLAUS F. ZIMMERMANN

In order to analyze the success of western and non-western migrants in both Denmark and Germany's labor markets, one must consider benefit claims, the amount of economic stimuli migrants cause in the labor market, as well as the balance between both tax and social transfer payments. The social security systems choose to promote certain incentives, which are vastly important for migrants' labor market participation. It appears that lower migrant employment in both Germany and Denmark at the end of the 1990s and in the early 2000s was due to the public provision of alternatives to employment. Indeed, when low-skilled migrants receive a lower income according to their qualifications and provided with a choice to opt out of the labor market through instead receiving high-wage replacement benefits, it should not be surprising that the workforce declines, or at least remains at a low level. At the same time, one can expect that instable and often interrupted occupations—at least in the German system—result in lower eligibility for pension and unemployment benefits. In addition, the favorable demographic structure of the migrant population also reduces the amount of social transfer payments compared to the native population.

So does the “calculation” hold for the timespan studied here? Are the expenses for unemployment benefits, welfare, pensions and other social security services more or less balanced by revenues in the form of social security contributions, as well as direct and indirect taxes? Is immigration beneficial for or a drain on the German and Danish economy, given the absence of any active selection policies at the time? Moreover, can we expect an even more favorable account balance of future revenues and expenses? We answer these questions through first focusing on the entitlement requirements for social transfer payment recipients under the legal frameworks during the selected period, and then we explore the socio-economic balance of migration.

1. The Social Security Systems' Structure and Entitlement Requirements

Regarding their social security systems' basic elements, Germany and Denmark show more differences than similarities.¹ This is evident in social transfer payments closest to the labor market: In Germany, it is mandatory to hold unemployment insurance, financed from equal contributions by the employer and employee. However, membership is optional in Denmark but around 80 percent of Danish employees have unemployment insurance; general taxes overwhelmingly finance the insurance and the insurant contributes only a small part.

¹ The following outline confines itself to central structural characteristics of the respective welfare states that were relevant in terms of the labor market in the late 1990s. The analysis does not discuss issues such as accumulating entitlement to benefits, the exact scope of benefits, or the transferability of benefits across country borders; the same applies to welfare services in terms of child allowance, housing assistance and disability annuities. The balance of the overall economic effect includes those services, as well as all indirect taxes. Unless otherwise stated, the data refers to the native and migrant populations.

The Danish unemployment insurance (*Arbejdsløshedsforsikring*) appropriates up to 90 percent of one's previous gross salary as taxable replacement income. At the same time, the maximum amount of unemployment benefits is regulated in such a way that the high replacement rates are de facto exclusively available to low-paid individuals; the wage replacement rates for individuals with high incomes is substantially lower. In other words, the system specifically restricts motivating low-skilled individuals to rejoin the labor market after losing their job. On the other hand, this regulation offers strong incentives for individuals with higher incomes, the larger group, to actively seek employment.

However, one needs to consider that Denmark has increasingly introduced “workfare” measures into their labor market and social security legislation since the mid-1990s. These ensure that people must participate in labor market services in order to receive transfer payments. For example, all individuals who are unemployed for over a year must undergo certain active measures, which can involve qualification measures or obligatory work at the communal level (although migrants are underrepresented in this area). In 1998, Denmark reduced the maximum length of unemployment benefits from seven to four years. Meanwhile they have also drastically tightened the criteria for benefits: After only three months of unemployment, people must accept a job offer even if it is substantially below their qualifications. If an individual refuses a job offer or participating in these measures, the state can temporarily or permanently cut unemployment benefits. Furthermore, in order to be entitled to receive transfer payments, people also need to hold unemployment insurance membership for at least a year, as well as account for an employment period of at least the same length of time within the last three years. Following unemployment benefits, the “final instance” of welfare (*Kontanthjælp*) comes into effect, which includes even more workfare elements.

Until 2004, German unemployment insurance was a dual system, consisting of unemployment benefits on one side and welfare on the other. In contrast to the Danish example, the German system determines the unemployment benefit amount based on net income. Thus, one cannot directly compare replacing 67 percent of the former income for people with children (otherwise 60 percent) to the Danish level received. Nevertheless, individuals who had a higher income are better off in Germany than Denmark because—up to the assessable income limit—they receive the same percentage of wage replacements as low-paid workers.

If one uses an average employee's previous income level in the industrial sector as a benchmark² and assumes a one-year period of unemployment, it is possible to calculate net replacement rates for different income levels in terms of Danish and German unemployment benefits. It becomes obvious that the Danish net replacement rates are highest for low-paid individuals, while the opposite holds true for Germany (*see Table 1*).

Table 1: Net replacement rates in 1999 for an insured laborer unemployed for a year

	Previous income in percentage of the APW-level, ranging from 75% to 200%					
	75	100	125	150	175	200
	Net replacement rates					
Germany	59	58	58	58	55	49
Denmark	79	61	52	46	41	37

Notes: Given in percent; net replacement rate in terms of the average, annual disposable income of the “Average Production Worker (APW)” according to the OECD standard; the accumulation of social transfers is not considered.

Source: Hansen et al. (2002)

² According to the OECD classification the “Average Production Worker” (APW) is used as a benchmark.

Assuming the similar precondition of a minimum one-year previous employment, the maximum length of unemployment benefit in Germany depends on age and individual employment history. In any case, it is substantially shorter than in Denmark. However, rather than directly leading to welfare after the maximum length of unemployment benefit is exhausted, as in the Danish case, the German system had also included unemployment assistance up until 2004. These transfer payments were not combined with insurance, but were solely financed by taxes. Nevertheless, the payments were based on previous net income and provided an amount somewhere between unemployment benefit and welfare. This model was replaced in 2005 by the generalized “unemployment benefit II,” which combined the former unemployment assistance with welfare.

In some regards, Germany is taking a step towards the Danish system, especially since the stricter regulations regarding labor criteria already affect the original unemployment benefit scheme’s recipients. On the other hand, Germany is heading in a different direction. This holds particularly true in regards to regulating supplementary income for recipients of unemployment benefit II or welfare. In contrast to the Danish system, which does not allow any additional income or offers any form of welfare complementary to other transfers, the German policy includes incentive-based concepts that have continued to expand since 2005. Germany plans to create even stronger incentives to rejoin the labor market, predominantly for future recipients of unemployment benefit II, since income from regular employment will affect the entitlement requirements for transfer payments of welfare recipients to a lesser scope than previously possible.

In contrast, the Danish social security system relies on the workfare measures’ effects and thus combines social and labor market policies even more so than the German system. An entitlement to welfare is generally contingent upon an obligation to work. The Danish government provides communal-level jobs, partly in cooperation with economic enterprises (for which the policy means wage subsidies for low-paid jobs). Yet this does not safeguard against long-term unemployment, except in the case of people with limited earning capacities. Furthermore, the Danish social security system contains special provisions for migrants. During the first three years of residence, migrants receive integration subsidies that are similar to welfare, but oblige recipients to participate in integration classes for three years. As a general policy, only people who have spent at least seven of the last eight years in Denmark are eligible for welfare; this includes Danish citizens who had temporarily lived abroad. If an individual does not meet this requirement, Denmark will cut the transfer payments.

The pension schemes in Germany and Denmark are also very different, apart from both countries setting a legal retirement age at 65.³ Germany finances their pension scheme according to an “inter-generational contract,” which should ensure that the working population contributes to the pensions of those generations who have dropped out of employment.⁴ As it is an obligatory insurance, it covers all employees working outside of public services. Individuals can only claim pension insurance after at least five years of contributing to it, although with counterbalances for time spent raising children. Special arrangements cover people with a very long employment history and ensure a smooth transition from unemployment or early retirement programs for older employees. Under specific circumstances for recognized refugees, it is also possible to consider employment periods in origin countries.

³ Nonetheless, the Danish government recently lowered the official retirement age from 67 to 65 years, which retroactively applies to all persons who have turned 60 after July 1, 1999.

⁴ The analysis does not present a discussion of this system’s sustainability.

The individual pension amount depends on the retirement age, the number of years that the person contributed to the pension scheme and the level of the previous income in relation to a statistical average income of a “benchmark pensioner” (derived from the average labor income over 45 years of employment history). Welfare covers those who are single and lack an employment history. Widowers of a partner who contributed to the pension scheme are entitled to a dependent’s pension, under severely restricted conditions. The state roughly matched pension development to wage development. Over time, the German statutory pension level has gradually lowered, currently amounting to 67 percent of the fictitious average income. Germany has implemented fundamental pension reforms due to demographic change and will continue to substantially reduce benefits even further. Recently it is also much more difficult to take advantage of early retirement. The market offers private supplementary insurances, but these are not yet mandatory.

As the German pension scheme treats income that amounts to less than 75 percent of the average income (that is subject to contributions) as it reaches this critical value, migrants benefit from the redistribution mechanism due to their lower average incomes. However, due to the pension formula—which considers employment history—they tend to receive no more than a small pension because they often do not reach the threshold of 40 years of contributions. Moreover, a lower proportion of migrants retire early. On one hand, this is due to their relatively low income, which does not allow for dropping out of the labor market early; on the other hand, it results from their demographic structure. Moreover, early retirement following an unemployment period is also a rare case for migrants because they often do not meet the entitlement requirements due to a shorter period of contributing uninterruptedly.

In contrast, Danish taxes fund the pension scheme (*Volkepension*), independent of individuals’ contributions and employment history; in this respect, it follows the same principles as other Danish social security systems. The state pension consists of a basic amount plus additional allowances, if the remaining income and that of the spouse does not exceed a certain maximum, or if there are special hardships. The key factor in determining the basic amount is the length of stay in Denmark: To be eligible for pensions, Danes have to live at least three years in the country between the ages of 15 to 66. Migrants face a 10-year-rule, although this does not apply to recognized refugees. Furthermore, there are exceptions due to bilateral treaties: For example, migrants from Turkey or former Yugoslavia must have spent at least five years in Denmark and been employed for one year before they become eligible for pensions. Only after 40 years of residence is the entire basic amount of the state pension paid; a shorter stay leads to proportionally reduced pensions—twenty years of residence thus cuts the pension in half. Early retirement is possible at the age of 60 and after 25 years of membership in unemployment insurance, but results in a proportionally reduced pension. Denmark annually adjusts the basic amount of state pensions to wage development and offsets it against any earned income. However, it is not offset against a spouse’s income (as in the case of the additional allowances).

Within this tax-based model, individuals with higher incomes account for the pensions of the population groups with the lowest income. In combination with a significantly more progressive taxation of income (compared to Germany), this pension scheme results in a more equal income distribution among the Danish population.

The state pension for those who are single is less than 50 percent of the Danish average income. A funded pension scheme, based on contributions, complements this old-age insurance scheme. It is mandatory for employees (*Arbejdsmarkedets Tiløbspension*, ATP)

yet is optional for other population groups under certain circumstances. The amount of contributions depends on the length of employment, rather than income, and employers account for two-thirds of the contributions. Even voluntary members of the complementary pension scheme pay only one-third of the costs; the state covers the rest. The ATP complementary pension scheme can be disbursed as a retirement annuity, a dependent's pension or as a one-time payment. Other special pension arrangements are based on collective agreements. All elements of the Danish pension scheme are subject to full tax liability.

The net wage replacement rates provide another difference between the German and Danish pension schemes. We will exemplarily look at a retirement annuity after 45 years of employment in both countries, as well as the Danish case of pension after 40 years of residence (without occupational activities). It appears that there is only a small difference between the net wage replacement rates with or without prior employment in Denmark. Contrarily, the German pension scheme has a substantially higher output volume; but this is due to a larger burden of dues that the beneficiaries must contribute and thus we do not consider it a system advantage (*see Table 2*).

Table 2: Net replacement rates in 1998 for single pensioners with or without an employment history

	Prior income based on the percentage of the APW-level, ranging from 75% to 200%					
	75	100	125	150	175	200
	Net replacement rate					
Germany						
With prior employment	70	75	83	81	71	70
Denmark						
With prior employment	70	55	41	36	32	70
Without prior employment	62	48	36	32	29	62

Notes: Given in percent; net replacement rate is based on the average, annual disposable income of the "Average Production Worker (APW)" according to the OECD standard; it does not consider housing benefits.

Source: Hansen et al. (2002)

2. Who Receives Transfer Payments in Germany and Denmark?

The German social security system makes it more difficult for migrants to access it since it requires labor market participation as a precondition for all services, except welfare. Meanwhile, the Danish system favors the low-income population and does not include a mandatory provision in terms of unemployment insurance. The result is a larger proportion of non-western migrants on welfare in Denmark than in Germany.

An empirical comparison supports this thesis: In 2000, the migrant population in Germany represented around 9 percent of the overall population, while their proportion in terms of welfare recipients (ongoing financial aid for subsistence) accounted for roughly 22 percent. Therefore, around 8 percent of the migrant population received welfare, as opposed to only 3 percent of German citizens. This corresponded to roughly 22 percent of Germany's social security expenses.⁵

In order to put these numbers into perspective, one should note that migrants are often very dependent on social welfare due to their limited access to the labor market. In the same year, non-western migrants in Denmark—who constitute around 5 percent of the entire population—received approximately 35 percent of welfare.⁶ Even if these numbers are only partially comparable across countries and one has to assume a higher proportion of welfare recipients among solely non-western migrants in Germany, these numbers indicate that more migrants receive welfare in Denmark than in Germany. On the other hand, employment trend analysis has revealed a greater participation of non-western migrants in the German labor market, coupled with above-average unemployment rates. Therefore, it seems reasonable that the extent to which individuals claim unemployment insurance is greater in Germany than Denmark. Thus, the initial impression is that the number of unemployment benefit recipients is higher than in Denmark.

Is it possible to confirm these impressions? We continue the discussion through analyzing unemployment benefits, welfare and pensions. We focus on five migrant populations from Turkey, former Yugoslavia, Poland, Iran and Lebanon. While Denmark offers rich public data, the German example stems from analyzing the Rockwool-Foundation Migration Survey (RFMS-G) and data from the socio-economic panel (SOEP), instead of (unavailable) official sources concerning non-western migrants.

There are substantially more migrants who receive unemployment benefits in Germany than in Denmark (*see Table 3*). The significant difference between the shares of migrants and natives who receive benefits is not surprising, nor is the gap between male and female migrants. The migrant unemployment rate is substantially higher than that of natives and the labor market participation of male migrants is greater than that of female migrants. These numbers are most favorable for migrants from Poland and former Yugoslavia.

⁵ See *Beauftragte für Migration* (2003, p.353f) and *Haustein* (2002).

⁶ See *Nielsen* (2002).

Table 3: Unemployment benefits received in Germany (2002) and Denmark (2001)

	Germany, 18-64 years old						Denmark, 18-66 years old	
	Unemployment benefit		Welfare		Total		Unemployment benefit	
	Male	Female	Male	Female	Male	Female	Male	Female
Former Yugoslavia	6	4	5	2	11	6	8	7
Iran	7	4	5	4	12	8	6	4
Lebanon	11	2	16	3	27	6	6	3
Poland	6	3	5	4	11	7	7	9
Turkey	10	4	8	4	18	8	15	13
All five countries	8	4	7	4	15	7	11	9
Germans	4	3	2	2	6	5	-	-
Danes	-	-	-	-	-	-	4	6

Notes: Given in percent; the various population groups are based on citizenship.

Sources: Zimmermann/Hinte (2005), based on Rockwool Foundation Migration Survey/RFMS-G (figures for Germany, excluding German citizens), Danish Register for Social Statistics (figures for Denmark), GSOEP 2001 (figures for German citizens), own calculations.

In Denmark, the gap between female and male migrants is significantly smaller, although the proportion of women from non-western countries receiving unemployment benefit is slightly larger than in Germany. The substantially lower proportion of male transfer payment recipients from non-western countries (excluding migrants from Turkey) in comparison with Germany is probably caused by the fact that Danish unemployment insurance is voluntary. Under specific circumstances, those with a lower income in Denmark may be better off forgoing unemployment insurance (thus passing on unemployment benefits) and instead opting to receive welfare.⁷

To underline this point, we look at the proportions of migrants receiving unemployment benefit or welfare (*see Table 4*). In Denmark, the proportion of social services recipients in these two systems is increasing rapidly, whereas the number is only growing gradually in Germany. Therefore, non-western migrants in Germany more often receive unemployment benefit than welfare, while the opposite holds true for Denmark. The entitlement requirements to receive unemployment benefits apparently have a strong influence on the frequency of transfer payments.

⁷ See Parsons et al. (2001).

Table 4: Unemployment benefits, unemployment assistance or welfare received in Germany (2002) and Denmark (2001)

	Germany, 18-64 years old Unemployment benefit, unemployment assistance or welfare		Denmark, 18-66 years old Unemployment benefit or welfare	
	Male	Female	Male	Female
Former Yugoslavia	25	20	25	29
Iran	24	22	35	38
Lebanon	53	45	46	57
Poland	16	13	15	21
Turkey	22	13	25	29
All five countries	23	16	26	29
Germans ¹	7	7	-	-
Danes	-	-	6	8

Notes: Given in percent; the various population groups are based on citizenship; welfare received that is unrelated to the labor market causes is also included. ¹ numbers refer to a whole year (2001); these GSOEP numbers statistically underestimate the amount of natives' transfer receipt.

Sources: Zimmermann/Hinte (2005), based on Rockwool Foundation Migration Survey/RFMS-G (figures for Germany, excluding German citizens), Danish Register for Social Statistics (figures for Denmark), SOEP 2001 (figures for German citizens), own calculations.

Moreover, it becomes clear that female migrants in Denmark receive unemployment benefits or welfare more often than male migrants. Comparatively, the proportion of these women is higher than the figures for Germany. The male-female difference results from varying behavior of female migrants in both labor markets. While female migrants in Germany often identify themselves as "housewives," those in Denmark—who have less availability to the labor market, according to ILO standards—still register as unemployed or welfare recipients; welfare statistics also confirm this (*see Table 5*).

Table 5: Welfare received in Germany (2002) and Denmark (2001)

	Germany			Denmark		
	Welfare, 18-59 years old		Welfare, household	Welfare, 18-59 years old		Welfare, household
	Male	Female		Male	Female	
Former Yugoslavia	15	15	18	16	22	23
Iran	14	15	18	29	35	36
Lebanon	33	41	45	40	54	56
Poland	5	7	7	7	12	12
Turkey	5	7	9	10	15	18
All five countries	9	10	13	15	20	22
Germans ¹	2	4	2	-	-	-
Danes	-	-	-	2	2	3

Notes: Given in percent and the various population groups are based on citizenship. ¹ Includes naturalized persons; ¹ numbers refer to a whole year (2001); these GSOEP numbers statistically underestimate the amount of natives' transfer receipt.

Sources: Zimmermann/Hinte (2005), based on Rockwool Foundation Migration Survey/RFMS-G (figures for Germany, excluding German natives), Danish Register for Social Statistics (figures for Denmark), GSOEP 2001 (figures for German citizens), own calculations.

With respect to pensions, it is hard to tell which system grants easier access. A comparison of the non-western pensioners over the age of 65 in Germany and between 66 and 70 in

Denmark does not reveal any remarkable divergences (see Tables 6 and 7). The situation is different in terms of the proportion of pensioners under the age of 65; but when we consider the welfare recipients in this age group, the smaller scope in Germany only documents the greater proximity to the labor market—it does not tell us anything about the access to the pension scheme.

Table 6: Pensions received in Germany in 2002

	Pension, 60 and over (65 and over)	Social assistance, 60 and over	Average length of stay, 60 and over	Average length of work history, 60 and over	Percentage with refugee residence permit
Former Yugoslavia	61 (86)	16 (20)	29	22	14
Iran	29 (47)	28 (36)	26	17	33
Lebanon	26 (...)	57 (...)	18	9	68
Poland	82 (93)	6 (5)	27	16	22
Turkey	62 (81)	7 (9)	30	20	7
All five countries	62 (82)	10 (12)	29	14	11
Germans ¹	86 (95)	1 (1)	-	-	-

Notes: Given in percent, distributed in different age groups; the various population groups are based on citizenship. ¹ numbers refer to a whole year (2001); these GSOEP numbers statistically underestimate the amount of natives' transfer receipt.

Sources: Zimmermann/Hinte (2005), based on Rockwool Foundation Migration Survey/RFMS-G (figures for Germany, except German nationals), GSOEP 2001 (figures for German nationals), own calculations.

In Denmark, there is an obvious systemic connection between the duration of stay and receiving pension benefits. In this case, migrants from Turkey have the highest share of pension benefits, as well as the longest residential duration, while the opposite holds true for Iranian migrants. On the other hand, refugee status in Denmark has obvious advantages in terms of access to the pension scheme, in contrast to Germany. The large share of migrants from former Yugoslavia who are over the age of 65 and receive pensions (combined with a briefer duration of stay) is because 75 percent of these migrants entered the country as refugees. The entirely different situation for Iranian citizens is probably due to a comparably high proportion of migrants returning to Iran at retirement age.⁸

⁸ See Pedersen (2000) and Nielsen (2002).

Table 7: Old-age and disability pensions and early retirement benefits received in Denmark in 2001

	Old-age pension, 67-70 years old	Social assistance, 67-70 years old	Early retirement benefit, disability pension, or social assistance, 60-66 years old	Average length of stay (in years)	Share with refugee residence permits ²
Former Yugoslavia	80	14	89	9	73
Iran	41	29	57	7	66
Lebanon	47	36	72	8	45
Poland	58	18	75	12	3
Turkey	95	1	85	19	1
All five countries	80	11	85	13	40
Danes	97	0	65	-	-

Sources: Zimmermann/Hinte (2005), based on Danish Register for Social Statistics, own calculations.

3. Excursus: Probability of Non-Western Migrants Receiving Welfare

A common argument among opponents of migration (in Germany, Denmark and elsewhere) is that migrants seemingly tend to receive welfare more often than natives. In this context, people have spoken of “migration into the social security system,” implying that the actual reason for migrants entering a specific country is its generous social security system. Indeed, in terms of asylum seekers’ eligibility for transfer payments, both countries have reformed legislation several times in order to make it harder to access welfare or replace it completely with in-kind benefits. However, the population’s general perspective does not align with academic findings. If people stopped rashly presuming that migrants excessively burden the social security systems based on the absolute number of welfare recipients, but rather compare migrants and native households with the same characteristics, the viewpoint will noticeably change: Under identical preconditions, migrants receive welfare benefits to the same extent or even less often than natives.⁹

In other words, the unquestionably higher proportion of welfare recipients among migrants is due to their different composition in terms of qualifications, income, household size and age structure. For example, a higher number of children combined with lower average income results in a greater need for welfare. Fewer claims to unemployment insurance stemming from more frequent employment interruptions linked with welfare eligibility—that exceeds the level of unemployment benefits due to an especially low income—may also increase the number of welfare recipients (as well as an altogether lower pension level). At the same time, the amount of transfer payments—which German legislation does not standardize but instead payments depend on the actual rent amount—can be lower than that of natives, given that migrant families’ housing tends to be less expensive.

⁹ See e.g. Riphahn (1998); Riphahn (1999); Bird et al. (2001).

Furthermore, studies have proven that the probability of welfare receipt has shifted over the course of migration in Germany; in contrast to the migrant populations who immigrated before the mid-1980s, individuals who entered the country later on were more likely to receive welfare.¹⁰ This underlines how different migrant cohorts' structural compositions actually are. In addition, we have to consider the massive differences between members of the first and second migrant generation: The second generation's altogether better integration also reduces their share of welfare recipients.¹¹ Moreover, a large proportion of those natives and migrants who would be entitled to welfare do not make claims for payments.¹² While there are no such specific studies for Denmark, there is reasonable ground to assume that we can extend many German findings also to Denmark.

In the course of this study's observations, we examined different influential factors of welfare receipt (*see Tables 8 and 9*¹³). The main influential variables are the attachment to the labor market, the length of stay and the extent of language skills. A longer duration of stay reduces the probability of welfare receipt more so in Germany than in Denmark, within which the observed cohort effects—namely the shifting structure of migration—also play a role. Good language skills improve the chances for successful labor market participation and thereby reduce the likelihood of being dependent on welfare. However, once people are integrated into the German labor market, language skills do not have a strong impact beyond sufficient language proficiency; meanwhile in Denmark, only excellent language skills reduce the probability of receiving welfare.¹⁴

Migrants' country of origin and status (e.g. refugee, dependent or labor migrant) also influence the probability of receiving welfare. In Germany, the likelihood of being dependent on welfare rapidly increases once one is a recognized refugee. In Denmark, however, this has no impact whatsoever. The reason for this probably lies in the overall easier access to the Danish labor market, rather than from different human capital characteristics. Among the examined migrant groups, migrants and refugees from Lebanon are very likely to receive welfare, whereas migrants from Turkey have the lowest probability of receiving welfare due to their special proximity to the labor market.

¹⁰ See e.g. Voges et al. (1998).

¹¹ See e.g. Fertig/Schmidt (2001).

¹² See Kayser/Frick (2000) and Riphahn (2001).

¹³ See Tranæs/Zimmermann (2004) for methodical details.

¹⁴ See also Pedersen (2000) and Nielsen (2002).

Table 8: Logistic regressions of the probability of foreign citizens receiving social assistance in Germany in 2002

	Household level		Individual level, 18-59 years old	
	1	2	3	4
	Coeff. (std. err.)	Coeff. (std. err.)	Coeff. (std. err.)	Coeff. (std. err.)
Constant	***-1.710 (0.489)	***-1.442 (0.430)	** -1.728 (0.771)	-0.496 (0.710)
Respondent				
Age/10			-0.259	***-1.187 (0.366)
Age squared/100			0.037	***0.156 (0.048)
Female (0/1)			***-0.581	-0.023 (0.110)
Former Yugoslavia		-	-	-
Iran	**0.347 (0.139)	0.188 (0.126)	*-0.282 (0.173)	*-0.278 (0.161)
Lebanon	***0.915 (0.134)	***0.931 (0.120)	**0.316 (0.161)	**0.365 (0.151)
Poland	***-0.661 (0.158)	***-0.949 (0.146)	-0.145 (0.213)	*-0.358 (0.200)
Turkey	***-0.804 (0.139)	***-0.918 (0.130)	***-0.759 (0.200)	***-0.780 (0.192)
Very good German	***-0.569 (0.128)	***-0.713 (0.117)	*-0.335 (0.177)	***-0.535 (0.165)
Good German	***-0.474 (0.125)	***-0.553 (0.114)	-0.172 (0.147)	***-0.358 (0.138)
Average German		-	-	-
Poor German	***0.413 (0.129)	***0.548 (0.119)	**0.296 (0.147)	***0.500 (0.138)
Very Poor German	***0.940 (0.157)	***1.059 (0.140)	***0.806 (0.177)	***0.993 (0.166)
Duration of stay/10			** -0.218 (0.095)	***-0.318 (0.092)
Bad health (0/1)			**0.415 (0.175)	***0.859 (0.168)
German educ. (0/1)			-0.171 (0.229)	** -0.490 (0.219)
Refugee (0/1)			***1.041 (0.125)	***1.073 (0.119)
Employed			***-2.088 (0.173)	
Out of labor force			***0.429 (0.142)	
Unemployed			-	
Employed in home country			*0.255 (0.132)	0.175 (0.125)
Student in home country			0.330 (0.242)	0.286 (0.233)
Other occupation in home country			-	-
Family at arrival (0/1)			-0.066 (0.110)	-0.107 (0.103)
Islam (0/1)			***0.467 (0.140)	***0.459 (0.133)
Head of household				
Female (0/1)	***0.575 (0.132)	***0.905 (0.122)		
Age/10	*0.321 (0.204)	** -0.400 (0.183)		
Age squared/100	** -0.049 (0.022)	**0.047 (0.019)		
Employed	***-2.257 (0.115)			
Out of labor force	**0.235 (0.116)			
Unemployed		-		
Household				
No. children <16 yrs	***0.266 (0.037)	***0.244 (0.033)	***0.137 (0.041)	***0.202 (0.039)
No. persons > 16 yrs	***0.180 (0.052)	***0.216 (0.048)	*0.111 (0.064)	0.084 (0.060)
Owns home	***-1.954 (0.394)	***-2.338 (0.391)	***-1.729 (0.518)	***-1.882 (0.517)
Single person	-0.099 (0.156)	0.165 (0.148)	0.277 (0.188)	**0.364 (0.176)
Single parent	***1.172 (0.255)	***1.044 (0.225)	***2.480 (0.246)	***2.280 (0.226)
Other type of family		-	-	-
Log Likelihood	-1749.9	-2090.3	-1289.9	1460.6
No. of observations	5614	5614	4542 ¹	4542 ¹

Notes: *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level. ¹The difference between the numbers of observations is due to the age constraint in regressions 3 and 4. Table 8.8 shows four logistic regressions of the probability of receiving social assistance in Germany, with the dependent variable including both income support and support in special circumstances. The analysis stems from RFMS-G, so only foreign citizens are included. The analysis excludes second-generation foreigners. As the table shows, two regressions are at the household level and two at the individual level. This is to take into account the differences between the German and Danish social assistance systems.

Sources: Zimmermann/Hinte (2005), based on Rockwool Foundation Migration Survey/RFMS-G, own calculations.

Table 9: Logistic regressions of the probability of foreign citizens and naturalized immigrants receiving social assistance in Denmark in 2001

	Household level		Individual level, 18-59 years old	
	1	2	3	4
	Coeff. (std. err.)	Coeff. (std. err.)	Coeff. (std. err.)	Coeff. (std. Err.)
Constant	***-2.838 (0.865)	**1.865 (0.833)	***-2.996 (1.124)	***-1.868 (1.062)
Respondent				
Female (0/1)			0.099 (0.159)	***0.424 (0.148)
Age/10			0.068 (0.056)	0.021 (0.053)
Age squared/100			-0.099 (0.074)	-0.020 (0.071)
Former Yugoslavia		-	-	-
Iran	0.162 (0.199)	0.237 (0.193)	0.107 (0.245)	0.366 (0.232)
Lebanon	**0.465 (0.204)	***0.745 (0.195)	*0.500 (0.263)	***1.029 (0.249)
Poland	** -0.651 (0.273)	***-0.750 (0.268)	*-0.594 (0.345)	-0.485 (0.334)
Turkey	***-0.591 (0.273)	***-0.685 (0.210)	*-0.584 (0.337)	-0.308 (0.321)
Very good Danish	***-1.315 (0.223)	***-1.312 (0.219)	***-0.742 (0.282)	***-0.758 (0.269)
Good Danish	** -0.396 (0.165)	***-0.460 (0.161)	-0.202 (0.185)	-0.196 (0.174)
Average Danish		-	-	-
Poor Danish	0.181 (0.208)	0.293 (0.202)	0.141 (0.226)	0.262 (0.215)
Very Poor Danish	0.406 (0.283)	*0.596 (0.277)	0.183 (0.331)	0.242 (0.312)
Duration of stay/10			-0.015 (0.016)	** -0.032 (0.016)
Bad health (0/1)			**0.438 (0.212)	***0.870 (0.204)
Danish educ. (0/1)			** -0.616 (0.249)	***-0.694 (0.234)
Refugee (0/1)			0.214 (0.192)	0.227 (0.182)
Out of lab. force (0/1)			***1.517 (0.164)	
Employed in home country			*-0.763 (0.452)	*-0.786 (0.430)
Student in home country			-0.023 (0.186)	0.041 (0.176)
Other			-	-
Metropolitan area	-0.045 (0.187)	-0.147 (0.182)	-0.056 (0.211)	-0.095 (0.199)
Jutland	0.165 (0.186)	0.158 (0.182)	0.108 (0.208)	0.129 (0.196)
Rest of the islands		-	-	-
Family at arrival (0/1)			0.203 (0.168)	0.104 (0.160)
Religion (0/1)			0.171 (0.220)	0.244 (0.209)
Head of household				
Female (0/1)	-0.275 (0.206)	-0.056 (0.199)		
Age/10	**0.977 (0.406)	0.611 (0.393)		
Age squared/100	***-0.133 (0.046)	*-0.080 (0.045)		
Out of lab. force (0/1)	***1.096 (0.144)			
Household				
No. children <16 yrs	*0.103 (0.062)	*0.103 (0.061)	0.084 (0.071)	*0.118 (0.066)
No. persons >16 yrs	** -0.211 (0.101)	*-0.167 (0.100)	-0.095 (0.113)	-0.111 (0.109)
Owns home (0/1)	***-1.327 (0.285)	***-1.580 (0.281)	***-1.268 (0.303)	***-1.519 (0.296)
Single person	*-0.444 (0.265)	*-0.443 (0.260)	-0.464 (0.303)	-0.360 (0.289)
Single parent	0.282 (0.321)	0.340 (0.314)	0.348 (0.339)	0.385 (0.323)
Other family type		-	-	-
Log Likelihood	-768.6	801.8	630.3	696.9
No. of observations	2167 ¹	2173 ¹	1795 ¹	1823 ¹

Notes: *** = significant at 1 percent level, ** = significant at 5 percent level, * = significant at 10 percent level. The differences between the numbers of observation are due to the age constraint in regressions 3 and 4 and to missing values. Table 8.9 shows the four regressions of the probability of receiving social assistance in Denmark. Unlike the German sample, this sample originates from RFMS-D and thus includes naturalized foreigners but excludes second-generation immigrants. Sources: Zimmermann/Hinte (2005), based on Rockwool Foundation Migration Survey/RFMS-G, own calculations.

4. The Fiscal Consequences of Migration

In order to determine migration's consequences in terms of public funds, analyzing the amount of public transfers that migrants receive is only a fragmentary approach. For an adequate balance of the fiscal revenues and immigration costs, it is insufficient to consider all public expenses, including the expenditures for public goods. Moreover, a strong analysis must also incorporate migrants' financial contributions through taxes and social security dues. The outcome of such a balance not only depends on the number of migrants and their demographic structure but the state's fiscal policy regarding redistribution measures also plays a major part.

Redistribution by means of fiscal policy has two essential dimensions. First, the state redistributes taxes and transfers between members of one generation. More specifically, the state requires a positive net contribution from some individuals in order to give others net transfer payments. This socially accepted intra-generational redistribution aims to narrow the gap between wealthy and poor populations. Moreover, this process often corresponds to easily identifiable characteristics such as income, as well as individual status concerning employment, health and family. Regarding these characteristics, if the migrant population has a more unfavorable structure compared to natives, the total volume of this kind of redistribution can increase. If the fiscal measures for redistribution relate to a loss of effectiveness—for instance, due to a progressive taxation system—it can have detrimental consequences for the economy.

The second form of redistribution concerns fiscal policy measures to recompense between members of different generations. One aspect of this inter-generational redistribution is the transfer of consumption opportunities between generations who are actively involved in the production process and age groups whose income cannot cover their running expenses, such as children, adolescents and pensioners. Institutions such as the family or market (for example, private pension insurance) close part of this gap. In terms of private insurances, a systematic redistribution between migrants and natives is not possible. However, we should consider the redistribution through the public sector, which mainly depends on pension and health insurance arrangements, as well as on the education system's design.

On one hand, how immigration influences the extent of the states' inter-generational redistribution depends on the system's progression to redistribute resources over the lifespan with respect to income. The more independent the public transfer payments to age groups below or above working age are from actively generated labor income, the more likely the lower average labor income of migrants will become a fiscal burden from an inter-temporal perspective. On the other hand, the extent of redistribution also depends on migrants' demographic structure, which usually differs from that of the native population.

A second aspect of inter-generational distribution is especially relevant because of demographic aging; it concerns shifting consumption opportunities over time due to a public deficit, which restricts the future latitude in terms of public budgets. Since taking on new lending in the long-term cannot cover this resulting interest burden, it is necessary to have primary budget surpluses in the future in order to ensure government solvency. If higher taxes or lower transfer levels are options to achieve this, then migration can ease the burden for natives, simply because more people would be contributing.

Attempting to accurately measure immigration's net burden or public budget relief requires extensive data concerning migrants' relative fiscal position in terms of taxes and transfer

payments. Most existing studies are less ambitious and limit themselves to estimating tax payments and transfer amount that migrants received at a specific time.¹⁵ However, these cross section analyses neglect two important aspects: First off, tax and transfer levels shift over time when the migrant population ages and secondly, migrants have children who influence how the public budget develops since they become tax contributors and transfer recipients. The importance of this effect increases even when the present level of public revenues and expenditures is not sustainable in the long-term; this is because an aging society's growing deficit per capita requires some fiscal policy adjustments. An extensive balance of migration's fiscal effects therefore needs to incorporate a demographic perspective into any inter-temporal analysis.

An empirical instrument to evaluate public budgets with an inter-temporal perspective is the so-called generational balance.¹⁶ It measures the present value of contributed taxes and received transfers of representative individuals over their whole lifespan in generational accounts. A calculation of generational accounts considering the marginal costs of providing public goods and real expenditures directly shows the extent to which specific generations relieve or burden the public budget. By calculating the specific generational accounts of migrants and natives, one can then make claims regarding the extent of fiscal redistribution between the two population groups. By combining the generational accounts with set fiscal restrictions ensuring long-term preservation of government solvency, one can then also estimate migration's indirect fiscal benefits under an unsuitable fiscal policy.¹⁷

Migration's generational balances are now available for several countries, with outcomes showing a considerable variation. In the United States, the generational balance has proved that immigration is neither a burden nor relief for public budgets. Significant beneficial effects only occurred when immigration did not lead to additional costs in terms of public goods and real expenditures.¹⁸ In Spain, migration shows considerable positive effects, leading to fiscal relief for natives. More specifically, due to the uniquely high decline in birth rates in Spain, public budgets were under great strain in the middle term.¹⁹ In the case of the Netherlands, the outcome is the exact opposite: Since non-western migrants have very high unemployment and thus dependent on public transfer payments, the average financial contribution to public funds is negative. Therefore, redistributing public resources in the Netherlands favors non-western migrants, who are often poorly integrated; this comes at the cost of both natives and western migrants.²⁰ Returning to our case studies, what kind of generational balance exists in Germany and Denmark?

¹⁵ See Simon (1984) for the US, Akbari (1989) for Canada and Gustaffson/Österberg (2001) for Sweden; Poschner (1996) provides a literature overview.

¹⁶ Auerbach et al. (1991, 1992) and Kotlikoff (1992) have mainly developed this approach.

¹⁷ See Kotlikoff (1992) and Bonin (2001) for an introduction into the methodology of generational accounting and Feist/Raffelhüschchen (2001) for a critical assessment.

¹⁸ See Auerbach/Oreopoulos (2000).

¹⁹ See Collado et al. (2004).

²⁰ See Roodenburg et al. (2003).

5. Generational Balance for Germany—The Calculation Is Paying Off

The net contributions of representative migrants to public budgets in both countries are estimated by examining the generational accounts.²¹ Moreover, we base the generational balance on average age-specific net tax payments of individuals in a relevant part of the population. Net tax payments are the taxes paid within one year, after deducting individually received transfer payments, but include social security contributions. In this regard, the criteria to distinguish between public transfer payments and real expenditures are vague. In order to ensure comparability between the German and Danish calculation results, we treat the monetary value of all public expenses (excluding public interest payments, which are returns to private capital) as transfer payments and distribute them individually based upon age.

An extensive evaluation of data on individuals (sorted according to age and nationality) serves as the foundation for the calculations concerning migrants' fiscal position in Germany. For this purpose, we use a two-step procedure. First, we generate fiscal age profiles as precisely as possible using data from income and consumption samples, pension insurance carrier statistics, education statistics and the health insurance systems' risk structure compensation. Taxes on capital income and consumption, documented solely at the household level, are evenly distributed across all adult household members. Second, we determine the relative fiscal position of Germans and migrants with the socio-economic panel according to age.

Due to a lack of data, we assume that the relative consumption level in migrants' households—in terms of the financial burdens due to taxes on consumption and excise duties—matches the relative position of their net income. Given that there is no reliable data regarding migrants utilizing health services, we do not distinguish between them and the native population concerning public health insurance expenditures. We define foreign households as groups of people led by a head of household who is originally from Turkey, Greece, the former Yugoslavia, Spain or Italy.²² The presented calculations are therefore not representative of all non-citizens currently living in Germany, but rather refer to the guest workers and their descendants, who are still a predominant part of the population.

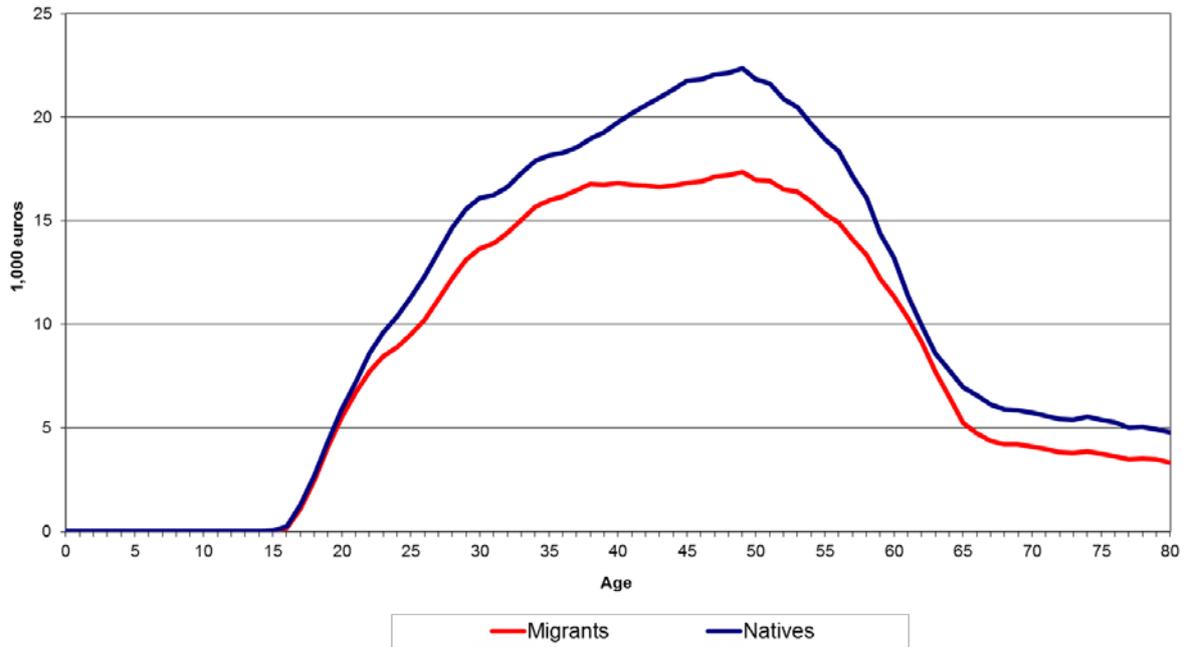
Overall, the generational balance is composed of 33 different tax and transfer payments that are distributed to both population groups according to age. In terms of taxes and dues, we refer only to taxes on income, turnover taxes, excise taxes and social security contributions. In terms of transfers, we consider payments of all social insurance branches, welfare, housing benefits, child and youth services, child benefits, educational grants and public school expenditures. We scale the age profiles to the level in 1996 in order to correctly measure the importance of individual taxes and transfer payments; otherwise, the calculations based on the

²¹ Bonin et al. (2000) presented the first generational balance for migration in Germany; the author published an updated version two years later (Bonin, 2002), on which the following results are based. Compared to previous fiscal balances of migration in Germany (for example, Ulrich, 1992), these calculations have the advantage that they completely capture both the income and expenditure side of government budgets, including social security insurances. Additionally, they make an appropriate assessment of expected cash flows. On that note, the present generational balances are also superior to a newer evaluation of migrants' fiscal net contribution in Germany that Sinn et al. (2001) published. In this study, Sinn et al. only simplistically regard the present value of the cash flow for income and expenditure items, although future payments have a lower economic value due to interest effects. For instance, this practice leads to a systematic underestimation of the value of migrants' financial contribution, in terms of the statutory health insurance, as the income from contributions and the social transfer payments are time-lagged. Therefore, it seems too rash to conclude that migrants in Germany on average are net recipients of social transfer payments. Although the authors' deduction received a tremendous response from the public, the thesis appears to be flawed also because the introduced balance admittedly captures all public revenues, but only 70 percent of tax revenues.

²² This corresponds to sample B of the German Socio-Economic Panel (GSOEP).

micro data—more specifically concerning the age profiles—would lead to deviations from the public authorities’ actual revenues and expenditures. The foundation for the 1996 scale is the state budget, taken from national accounts and includes all federal levels and social insurance, with the chosen year representing a period of moderate economic growth in Germany. This is important in order to limit contortions of the results due to cyclical shocks.

Figure 1: Tax payments of migrants and Germans in 1996, distributed by age



Source: Zimmermann/Hinte (2005).

First, we are interested in comparing the age-specific tax contributions of migrants and Germans under the conditions described above.²³ For both population groups, the identified tax contributions were highest during their working life. Furthermore, the profile’s course reflects the average income development throughout people’s careers (*see Figure 1*). The reason for this is that income taxes and social security contributions account for a large share (approximately 60 percent) of German national accounts. Pensioners rarely contribute to these forms of income because pensions are usually not subject to taxation; contributions to the statutory pension insurance and unemployment insurance are also excluded. Thus, indirect taxes form most of the burden for those elderly and retired. However, these are of minor importance, as costs for consumer durables decline as age increases.

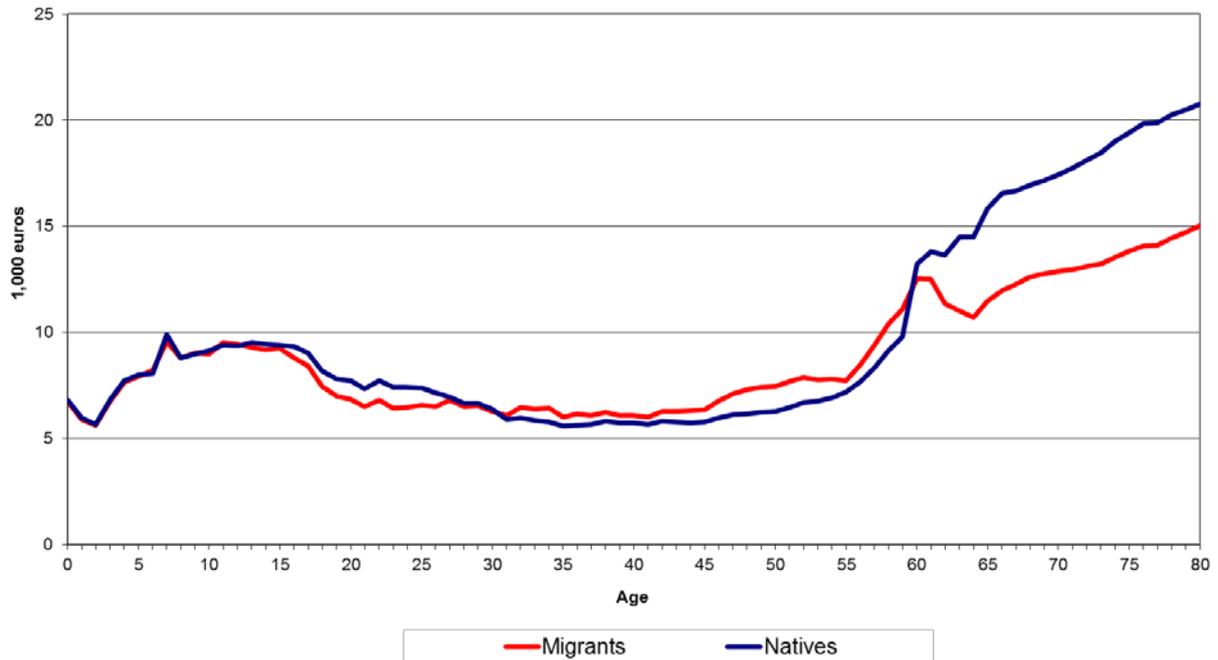
Migrants generally make lower tax contributions than Germans of the same age group: The measured gap is 20 percent regarding tax payments. This results from backlogs in migrants’ incomes compared to Germans’ tax contributions. Due to the progressive income tax system, the margin is slightly larger in terms of direct taxes than it is in terms of gross income.²⁴ The

²³ The population of Western Germany serves as the comparison group in this case as the overwhelming majority of migrants lives in that part of the country. In addition, the level of taxes and transfer payments still varies considerably between the federal states in Germany’s eastern and western parts.

²⁴ See Schmidt (1997).

regressive effect that (indirect) taxation has on consumption does not counteract this effect because taxes on individual consumption are presumably apportioned adequately to current income.

Figure 2: Public transfer payments received by migrants and Germans in 1996, distributed by age



Source: Zimmermann/Hinte (2005).

In order to determine migrants' net contribution to public budgets, we need to compare contemplated tax payments to received public transfer payments. As mentioned above, we calculate these assuming that the local migrant population is responsible for an almost proportional percentage of real expenditures.²⁵ In contrast to tax contributions, received transfer payments are extremely concentrated among the older population (*see Figure 2*). Due to payments originating from the public pension scheme, health insurance and care insurance (totaling 30 percent) and 17.7 percent of the contemplated national account, the level of transfer payments rapidly increases at age 57, when early retirement sets in. Transfer payments also continuously rise after retirement because people increasingly need expensive public health services and care. Children and adolescents also have a higher share of transfer payments in comparison to adults because they benefit from public expenditures for education, which constitutes 8 percent of the overall transfer capacity.

Unlike with taxes, the relative fiscal position of migrants versus Germans changes multiple times over the lifespan in terms of transfer payments—especially once people reach old age. While average received transfer payment amounts are relatively similar among the youngest

²⁵ The use of a mean value appears to be adequate when it comes to the evaluation of the overall financial contribution of migrants, because the reference situation of a zero share of migrants would certainly not result in a marginal change in public funds. However, the examination of the marginal financial contribution of additional migrants would be another matter entirely (*see Bonin, 2002*).

population groups, German adolescents generate higher public expenditures. This is due to migrants tending to start their working life earlier, whereas Germans often remain for longer periods in publicly financed educational establishments, particularly in cost-intensive universities. Moreover, this fact demonstrates that the gap in qualifications between the guest workers and natives does not fully close even in the second generation, despite being raised and socialized in Germany.²⁶

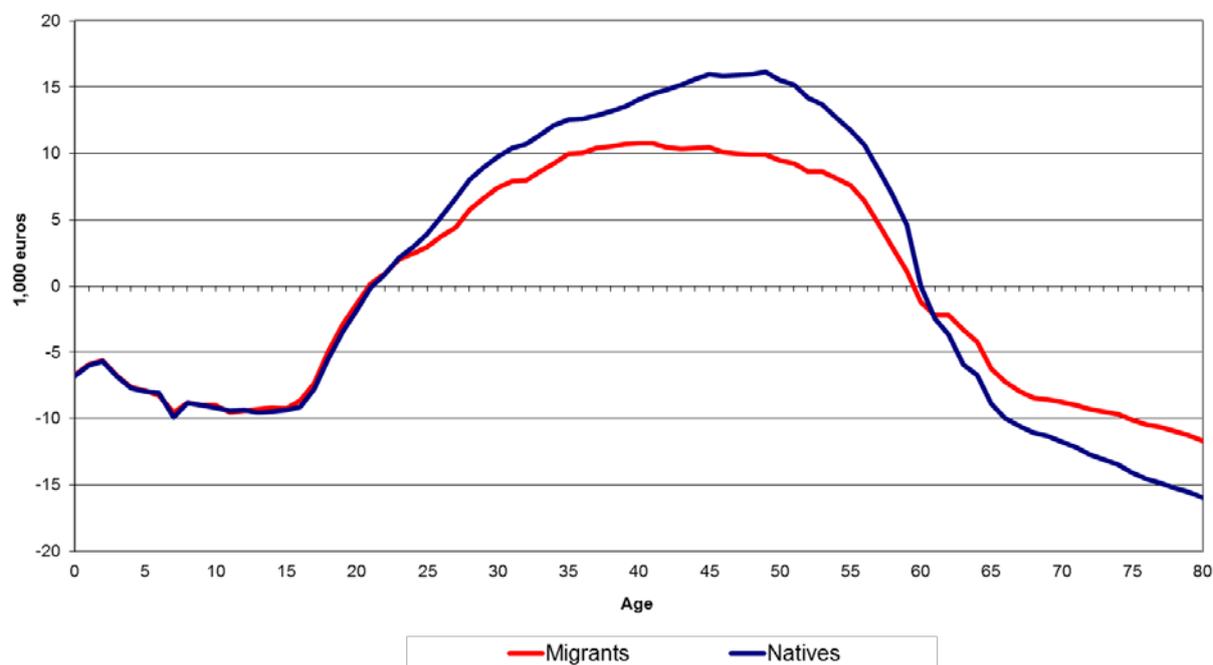
The balance between Germans and migrants turns over the course of adult life—more specifically during the middle-age phase. Since lower qualified migrants are more often unemployed, on average they receive more transfer payments (such as unemployment benefits). A representative migrant receives almost two-thirds more transfer payments than a representative native, which corresponds almost exactly to the relation between the two population groups' unemployment rates, while controlling for differences in income levels. The relation between the average received welfare payments and housing benefits is only slightly more favorable.²⁷ However, public expenses for unemployment benefits and other social security measures to ensure subsistence only account for a small part of overall government spending. Thus, the gap between the transfer levels of both groups is minor: Per capita, the maximum difference is less than 100 euros per month.

Once people reach retirement age, the relation of transfer payments again shifts, at the cost of the native population. Germany has a pay-as-you-go scheme in their pension system and bases the pension level on individual work history. Therefore, migrants' pensions create less burden on public budgets than similar strains by natives. In detail, the effects of a typically shorter working life in the destination country and a lower income level cumulate in terms of migrants' pension schemes. Migrants' lower pension benefits are also not compensated by provisions to artificially raise them for low-paid employees (so-called "pension benefits according to minimum income") or the often supplementary use of welfare payments for migrants in retirement.

²⁶ See Haisken-DeNew et al. (1997) and Riphahn (2001).

²⁷ This observation is congruent with more specific results by Riphahn (1998).

Figure 3: Net tax payments of migrants and Germans in 1996, distributed by age



Source: Zimmermann/Hinte (2005).

Are migrants net recipients or net contributors in Germany? The average age-specific net tax payments per person among native and migrant populations provide information concerning this question. The data derive from netting out the tax and transfer payment profiles discussed above (*see Figure 3*). Both population groups are net contributors to the public budget during the active employment phase, which on average ends around the age of 60 in Germany. Migrants' monetary contribution is lower than that of the German comparison group due to a combination of lower taxable capacity and higher dependency on transfer payments. Nevertheless, the migrants' contributions still result in predominantly positive figures. Migrants—as well as their German counterparts—who are not actively involved in the employment phase benefit from the public redistribution between older and younger generations. In particular, older migrants' fiscal position proves rather favorable: As net recipients of transfer payments, they put less burden on public funds than Germans of the same age group.

The net tax profiles completely register a state's revenues and expenditures, thus enabling a snapshot of migrants' fiscal contributions to public funds. Connecting the identified net contribution profiles to the population's age structure at a given time yields the average contributions of migrants under 80 years old, which amounted to 2,100 euros per capita in 1996. The comparable figure for the German population was 2,700 euros.

A favorable age structure reflects the main reason for migrants' positive fiscal position (*see Table 10*). As for the German population, a larger part is already in retirement and therefore counts as transfer payment recipients. On the other hand, a larger share of migrant children and young adults receives net transfer payments through the education system. However, on average, the fact that a larger proportion of the migrant population is between 20 and 60 years old (thus is actively in the employment phase) characterizes positive contributions and

therefore compensates for the fiscal burden from education. Furthermore, the proportion of those in the active phase is much higher for migrants than for Germans.

Table 10: Net tax payments per capita for selected parts of the population in Germany, fiscal year 1996

Age	Germans		Migrants	
	Percentage of the population	Net taxes per capita	Percentage of the population	Net taxes per capita
< 20	21.3	-8,000	28.2	-7,700
20-60	60.4	10,500	67.1	6,900
60-80	18.4	-10,300	4.7	-6,200
Total	100.0	2,700	100.0	2,100

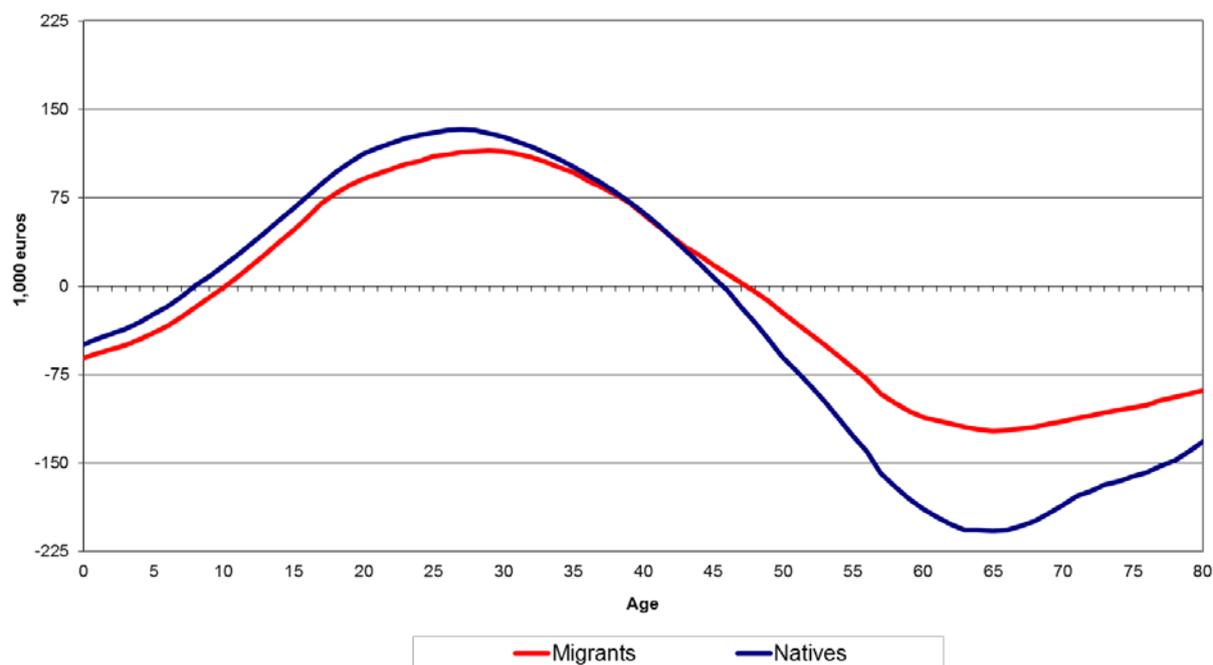
Source: Zimmermann/Hinte (2005), based on Bonin (2001).

It is possible that by regarding only the current contributions level one can misjudge migrants' actual value toward public funds in Germany. On one hand, past net payments are not considered. On the other hand, the selected short-term perspective neglects the fact that the people who are young during the study will age in the future. This means that the proportion of net transfer recipients in retirement will adjust to that of the German population, causing the migrant population's average per capita net contributions to decrease.

In order to understand the long-term fiscal consequences of this process, we need a foresighted perspective on the net cash flows between individuals and the state. Generational accounts make these available through capturing the present value of all net tax and transfer payments from a given time until death for a representative member of a specific age group. The generational accounts are generated by relating the age-specific net tax payments per capita with a birth cohort's age-specific survival rates.

Thereby, the implication is that the currently observed fiscal cross-section profile is interpreted as a trend over the population's remaining life cycle. However, one should note that the tax and transfer payments value shifts over time in a growing economy. For simplification in the following calculations, we assume that all age-specific net tax contributions will annually increase by a constant rate of 1.5 percent for migrants and Germans alike. Moreover, we keep the initial year's fiscal policy constant in the future, while we translate future cash flows into present economic values, using a 5 percent annual discount rate.

Figure 4: Generational balance of migrants and Germans in 1996



Source: Zimmermann/Hinte (2005).

When interpreting the generational balances of the migrant and German population, one has to consider that the specific age cohorts are monitored for a different time due to the exclusively predictive calculation method (*see Figure 4*). Therefore, the determined amount of net tax payments that an individual contributes until the end of his or her lifespan is only comparable with members of the same age cohort of other population groups, but not for people of different age cohorts within the same population group.

The generational accounts show a characteristic age pattern for migrants and Germans alike. In the case of newborns (age zero), the generational balance is negative. More specifically, a typical life cycle's average contributed tax payments are not sufficient to cover the state's transfer payments and real expenditures under the first year's fiscal policy conditions. This clearly demonstrates that the German fiscal policy is not sustainable. If the levels of revenues and expenditures remained at the level of the previous year, every new generation would receive net transfer payments from the public funds. To prevent the government deficit from skyrocketing, the state must eventually revise the fiscal policy, which increases the average net tax payments over what the initial situation presents.

While the birth cohorts increase in age, the net transfer payments decrease. Young adults are already net contributors to public funds, with 20 to 30 year olds generating the highest fiscal productivity. These generations presently pay high direct and indirect taxes but are still far from retirement and therefore receive relatively little net transfer payments. With increasing age, the generational balance value decreases again because the retirement transfer payments' present value is growing while periods with high tax loads have passed. Again, all Germans and migrants who are older than 45 years are on average net transfer payment recipients. The current level of transfer payments paid until the end of a person's life is largest in the case of the generations at the retirement threshold (60–65 years). As for the older generations, their generational balances drop corresponding to their shorter remaining lifespan.

If one compares the generational balances of Germans and migrants of the same age group, it is evident that the fiscal policy in Germany within the younger birth cohorts is favorable for migrants, while it is to their detriment within the older age groups. Migrants in Germany who are the first migrant generation's descendants (and have spent their whole life in Germany) contribute around 12,200 euros less to public funds than natives. The maximum backlog that migrants show in terms of net payments (in the age group of 22 year olds) is 22,500 euros. The cause for this intra-generational reallocation is an inferior position in terms of education and employment, as well as higher births in migrant families, resulting in higher tax benefits and transfer payments. However, looking at the population group of 65 year olds who are at the legal retirement age, it is evident that the present value of net transfer payments that are received until the end of the lifespan is roughly 40 percent lower for migrants than for Germans (122,900 and 207,900 euros, respectively). The reason for this is the neutral design of the German social security system: Over a person's lifespan, natives and migrants pay roughly the same amount of net contributions to social insurances.²⁸ In other words, migrants' income backlog leads to a corresponding backlog in terms of the contributed social insurance payments, but lower insurance claims in old age mostly balances this out.

Table 11: Net tax payments per capita in Germany in 1996 for selected parts of the population over their lifespans

Age	Germans		Migrants	
	Percentage of the population	Net taxes per capita over the time of lifespan	Percentage of the population	Net taxes per capita over the time of lifespan
< 20	21.3	16,700	28.2	1,600
20-60	60.4	27,500	67.1	60,300
60-80	18.4	-185,800	4.7	-115,300
Total	100.0	-14,000	100.0	35,500

Source: Zimmermann/Hinte (2005), based on Bonin (2000).

With the generational balances, one can estimate the overall fiscal amount that migrants living in Germany in the initial year contributed to public funds until the end of their lifespan. In order to do so, the generational accounts have to be weighed against the initial population stock's age structure (*see Table 11*). The results show that the long-term fiscal relief through immigration is much higher than the previous cross-sectional analysis (*see Table 10*). The average net financial contribution of all migrant age groups under the age of 80 is presently 35,500 euros per capita. Since Germans receive 14,000 euros per capita net transfer payments on average, there is a massive resource redistribution in Germany's public funds, benefitting natives at the cost of migrants.²⁹ The overall value of the local migrant population's positive contributions under Germany's present fiscal policy conditions is 260 million euros, reflecting 9.7 percent of the gross domestic product in terms of the prices in the initial year.

²⁸ See Bonin (2002).

²⁹ Due to the non-consideration of wealth redistribution between Germans and migrants that may have occurred in the past, this number could overestimate the native population's actual vantage. Furthermore, we do not account for the fact that migration might have changed wage levels and capital incomes and thus altered natives' taxable base.

This extraordinarily good result is a consequence of the migrant community's favorable demographic structure compared to the German population. Approximately two-thirds of the migrant population is in the age groups of net contributors to the public funds according to the generational balances. In contrast, the corresponding German age group constitutes only half of the population. Furthermore, the average age of migrant net contributors is much lower than that of Germans. Migrants' average ten years age advantage cause the median value of the generational balances for the active population between 20 and 60 years to be almost twice as high (60,300 euros for the migrant age group) as the value of the West German comparison group.

Despite the direct fiscal benefits associated with immigration, there could be indirect relief effects for the native population, related to the fact that German fiscal policy is not sustainable considering emerging demographic developments. In order to meet future payment obligations, the state must increase net taxes at some time in the future. The local migrant population and their descendants enlarge the assessment basis for such a measure, causing the individual burden of adjustments to be lower for natives.

The exact extent of this demographic easing depends on the economic reaction to growing deficits. However, we can estimate its effect from a fiscal framework for sustainability that assumes a population census without future migration. In that case, every German citizen would need to pay an additional per capita tax of 1,300 euros each year in order to ensure government funds' solvency in the long term.³⁰ Without the local migrant population, natives' financial burden would increase according to their proportion in the population, assuming a constant inter-temporal budget deficit. More specifically, the additional annual financial burden for every German would be around 100 euros. Beside immigration's indirect financial benefit for the native population, the direct fiscal relief effects also play a role. The inter-temporal budget deficit is not constant, as expected; rather, due to migrants' overall positive net contributions, it is actually smaller.

6. Generational Balance for Denmark: Does the Calculation Hold?

Unlike in Germany, migrants' age-specific fiscal position in Denmark is rather easy to determine in terms of public budget contributions. The annual summary of official statistics, which are fiscally relevant, are gathered in cooperation with the Ministry of Finance and *Danmarks Statistik* and the necessary parts were then incorporated into the so-called *Lovmodel*.³¹ This model comprises detailed demographic and fiscal information concerning around a thirtieth of Denmark's population. In particular, the databank provided specific information regarding individually paid taxes and transfer payment receipts, including the use of public transfer payments and other public expenditures.

In the case of most age profiles, the official statistics are sufficient to differentiate between the relative fiscal position of migrants and natives. However, the available data for some age groups in the migrant population, especially among the older generations, is so rare that we need additional measures in order to construct the bigger picture. The following analysis is based on figures published in the latest study on migrants' fiscal net contribution to public

³⁰ See Bonin (2001).

³¹ See the dataset description in the Danish Ministry of Economic and Business Affairs (2000) and the Danish Ministry of Finance (2003).

funds in Denmark.³² In order to ensure compatibility with the German results, the analysis concentrates on the year 2000. This is the last year for which the Danish data provides information on children and adolescents, while it was also characterized by an average capacity utilization of the Danish economy; it thus ensures that the fiscal profiles are mostly independent from cyclical trends.

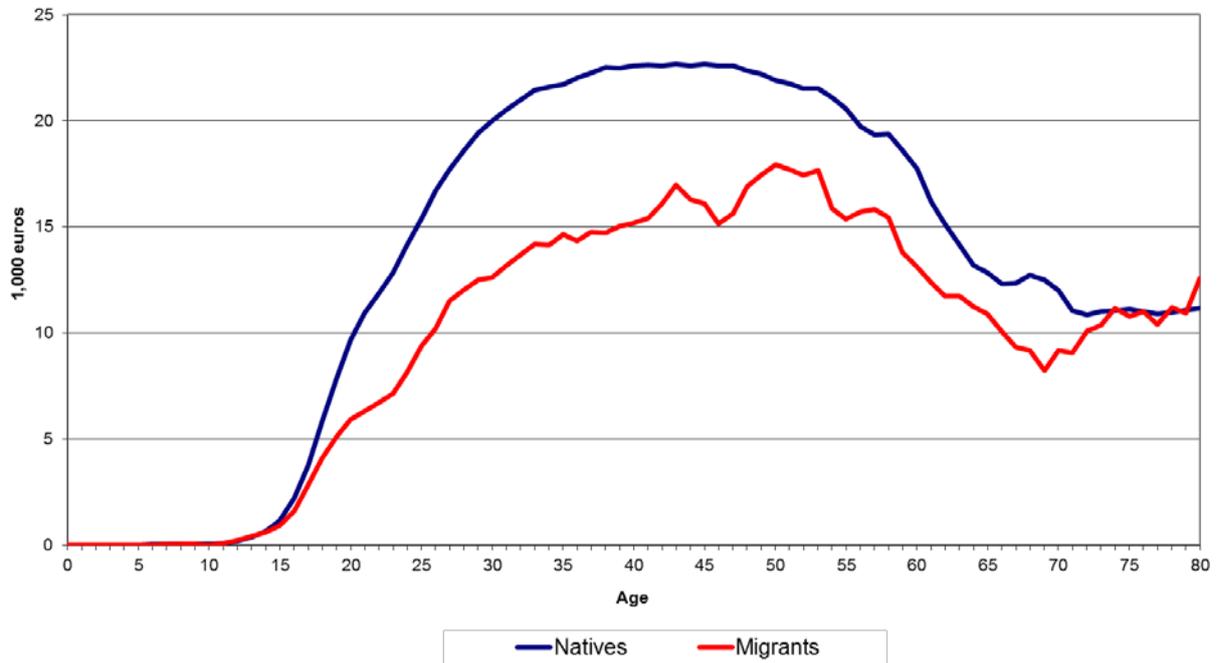
Nevertheless, the comparison between the two countries suffers from methodological differences. Indeed, distributions follow uniform principles in the following situations: i) Direct taxes on income, according to individual contributions, ii) indirect taxes on consumption, according to the individual share of disposable income, iii) financial transfers, according to individually received payments, and iv) real public expenditures and investments, according to individual use of public services, either where advisable or as constant payments per capita. However, in contrast to the calculations for Germany, the measured net contribution in Denmark does not consider the complete state budget. Concerning revenues, Denmark disregards income taxes that the individual employee does not directly cover—especially company taxes and other taxes on capital. Conversely, in terms of public expenditures, the public services regarded as independent from population size (for example, public administration, defense or agricultural subsidies) are not considered as individual transfers.

Overall, Denmark's public budget revenues are higher than expenditures in terms of the country's proportion of cash flows. Therefore, the population's current average net contribution is overstated. The Danish fiscal policy consequently appears to be more sustainable compared to previous generational balances, which had been based on a complete state budget but did not differentiate between immigration statuses.³³ It is difficult to estimate how the budget deficits in the following calculations are distributed across age, and between migrants and natives within the same age cohort. Based on the age-specific contributions of corresponding payment flows in Germany, the middle age group's net contributions will tend to be underestimated because this age group benefits the most from productive capital revenues. In contrast, the amount of received net transfers is probably underestimated at the margins of the age distribution.

³² However, the presented results differ in terms of the approach regarding transfer payments for migrants over the age of 70, as there is only very limited data available in the *Lovmodel* for this group. Wadensjö/Gerdes (2004) solved the problem by attributing the same payments for migrants and Danes alike. In contrast, in our analysis we chose a two-step approach: In the first step the level of transfer payments to over 70 year-old retirees is determined from transfer payments to younger retirees that were observed with satisfying accuracy. In the second step, the transfer changes that occur with increasing age—and which are predominantly a result of the mounting costs due to healthcare and nursing services—are estimated through observable changes in the native population.

³³ See Jensen et al. (2002).

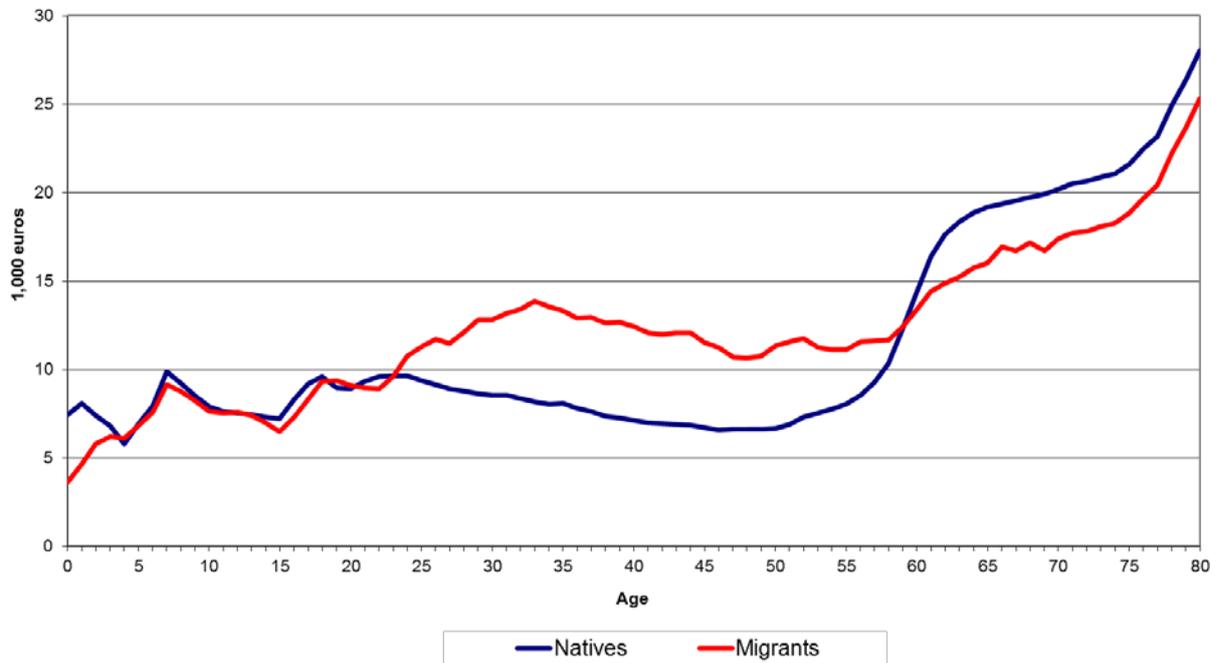
Figure 5: Tax payments of migrants and Danes in 2000, distributed by age



Source: Zimmermann/Hinte (2005).

Under the discussed conditions, a comparison of the estimated age profiles of tax payments in Denmark with the corresponding profiles for Germany highlights many similarities over the course of a lifespan (*see Figures 5 and 1*). In both countries, individuals who receive income from employment are burdened with the major part of the taxes and contributions. Therefore, how employment rates and wages develop during the occupational activity phase dominates the profile development. However, the tax payment level declines less sharply compared to Germany. The main reason for this lies in different taxation of pensions, which involve higher taxes in Denmark. While comparing the migrant and native cross section, it is remarkable that the 20 to 40 year old age group distinctly lags behind in Denmark, even more so than in Germany. Indeed, the migrant population backlog does not become approximately even in both countries until reaching the 40 to 60 year old age group.

Figure 6: Public transfer payments made to Danes and migrants in 2000, distributed by age

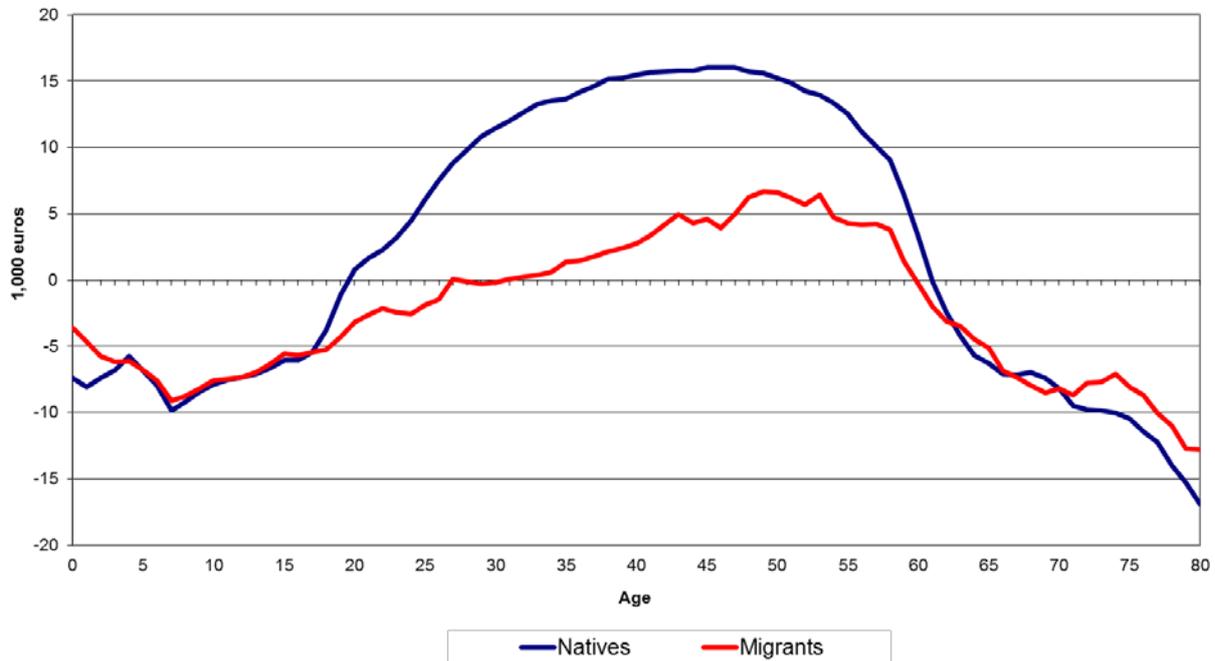


Source: Zimmermann/Hinte (2005).

Differences concerning the fiscal policy position of migrants are particularly easy to determine in terms of public transfer payments received. Looking at the native and migrant population's average value of transfer payments received in both Denmark and Germany, it is evident that this figure is considerably higher for the migrant population between 25 and 55 years of age (*see Figures 6 and 2*). This result is all the more remarkable since the transfer payments that the native population receives, as well as younger and older migrants, are almost at the same level in both countries.

One possible cause for the observed differences is Denmark's materially generous protection for the unemployed. Low-skilled individuals benefit from higher replacement rates (up to 90 percent) and lesser eligibility requirements (shorter timespan holding insurance) set in the state's unemployment insurance. Considering lower qualification levels, migrants in Denmark—compared to those in Germany—therefore benefit more from public measures for intra-generational redistribution at the cost of the upper income levels. Even more important is migrants' overall poor labor market participation, which leads to high levels of per capita welfare benefits. Indeed, migrants make use of higher public real expenditures: For example, they may participate in integration programs that Denmark publically subsidizes.

Figure 7: Net tax payments of migrants and Danes in 2000, distributed by age



Source: Zimmermann/Hinte (2005).

Looking at the age-specific net cash flows between representative members of both population groups in Denmark, one can decode the balance of tax payments and transfer payments. In the case of natives, the balancing of tax payments and received transfers leads to almost the same result as in Germany (*see Figures 7 and 3*). In contrast, migrants' fiscal position is far less favorable in Denmark than Germany. While the migrants who live in Germany have positive net contributions to public budgets during their entire working life, migrants in Denmark under the age of 30 are net recipients of public transfer payments. This is due to a combination of relatively low taxes, social security payments for people who are just beginning to work, and the previously mentioned high transfer payments for all working-age migrants. The fiscal position only becomes positive in terms of contributing to the Danish public budget when the migrant population is in a progressed phase of their occupational activity.

However, fiscal relief on behalf of the age groups providing positive contributions is falling behind the German figures. This already suggests that migrants' fiscal balance in Denmark will turn out considerably worse. Additionally, compared to Germany, about ten fewer migrant cohorts contribute positively to the state budget. This fact is all the more severe as this age group constitutes a major part of the population—a fifth of all migrants in Denmark are between 20 and 30 years old. Linking the age-specific net tax payments to the demographic structure gives an impression of migrants' importance for the public budget in the year 2000. Accordingly, the Danish state gives every migrant under 80 years old net transfers accounting to 1,400 euros. Unlike in Germany, where migrants have an overall positive fiscal position in the current cross section, Denmark's migrant population is a burden on public funds. In contrast, Danish natives contribute net payments of 4,000 euros per capita.

Migrants' unfavorable fiscal position in Denmark mainly results from a low financing capability of the middle generations (*see Tables 10 and 12*). While the average working-age migrant (between age 20 and 60) living in Germany contributes 6,900 euros to public funds, the average contribution is only 1,600 euros in Denmark. To gain perspective, children and adolescents or pensioners cause very similar fiscal burdens in both Germany and Denmark. Indeed, a demographic factor is affecting the Danish balance. Denmark's migrant population proportions under 20 years old and over 60 is respectively 1 percent and 3.2 percent larger than in Germany. Thereby the average net transfer payments increase per capita as these age groups benefit from public measures for inter-generational redistribution. In other words, the average net contributions of the working age migrant population to public funds are substantially lower in Denmark than in Germany; and a smaller part of the migrant population is in the occupational activity phase.

Table 12: Net tax payments per capita in Denmark in 2000 of selected parts of the population

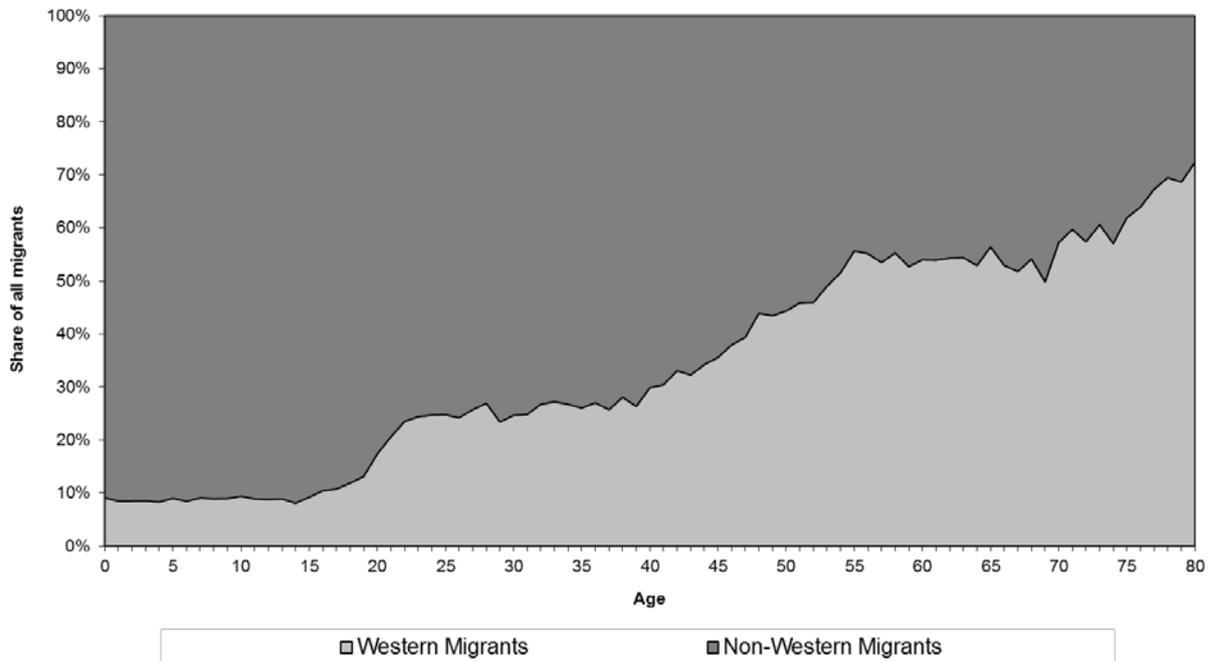
Age	Danes		Migrants	
	Percentage of the population	Net taxes per capita	Percentage of the population	Net taxes per capita
< 20	24.2	-6,900	29.2	-6,400
20-60	59.4	11,800	62.9	1,600
60-80	16.4	-8,100	7.9	-6,800
Total	100.0	4,000	100.0	-1,400

Source: Zimmermann/Hinte (2005), based on Wadensjö/Gerdes (2004).

Does this unfavorable image waver if instead of looking at the current net payments, one rather calculates the future net contributions of migrants presently living in Denmark? If one interprets the net tax payments cross section as a progression over the lifespan, many migrants who are still at the beginning of their working life would be ahead of their phase of positive contributions to the public budget. Therefore, the balance of migrants' net payments could still improve over time. However, it is not plausible to make a similar interpretation for Denmark as we did for Germany's generational balance. This is due to the more recent migration history of Denmark. As a result of migration flows over the last 15 years to Denmark, the migrant population has not only rapidly tripled in number, but has also experienced massive changes in demographic structure. These changes become obvious while examining the specific age groups and countries of origin. Since most people migrate when they are between 20 and 30 years old, it is possible to detect changes in migration's structure over time in the population's current cross section.

Among the younger working-age population—more specifically among people under 45 years old—migrants from non-western countries clearly dominate, while in the older age groups up to two-thirds of a generation originate from western countries (*see Figure 8*). In light of such massive changes, the profile of individual net contributions—measured in a cross-section analysis—probably reflects age effects as well as cohort effects. This means that the gradual increase in individual net tax payments among those 20 to 40 year olds is not only attributable to the employment and income trend after career entry, but also to better labor market integration of western migrants as they grow older.

Figure 8: Composition of Denmark’s migrant population in 2000, distributed by nationality and age

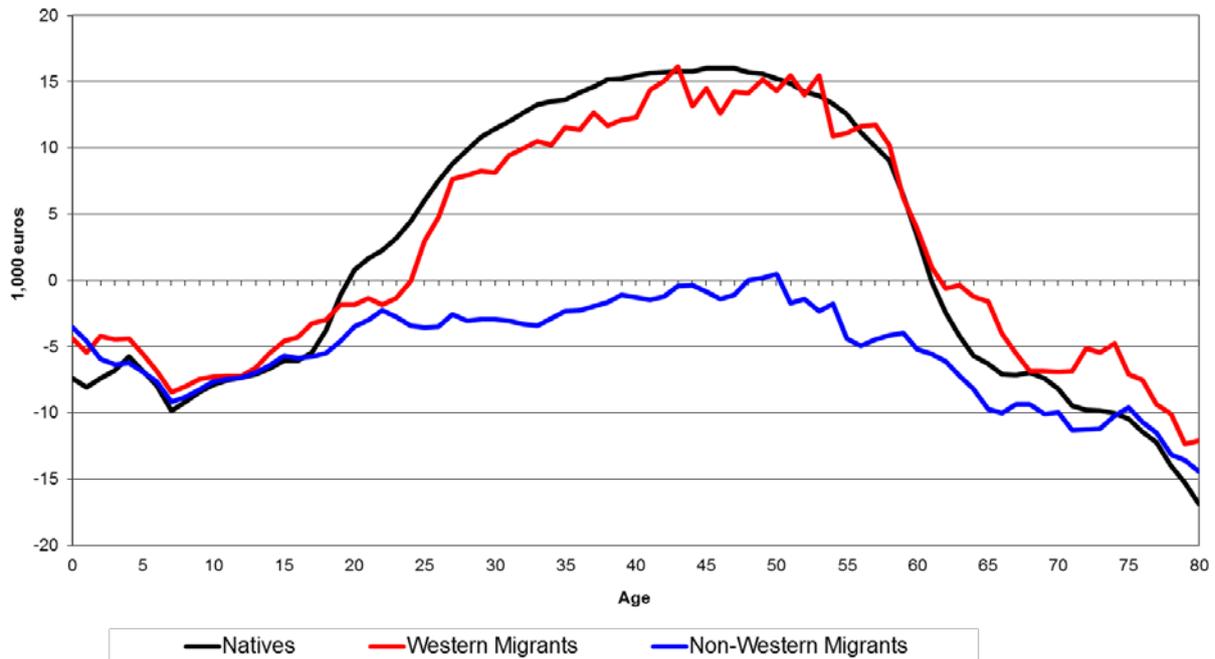


Notes: Western countries are defined as the member states of the European Union before eastern expansion: Norway, Iceland, Great Britain, Canada, Australia and New Zealand; all other countries here are non-western.
 Source: Zimmermann/Hinte (2005).

Before calculating the generational accounts, it is therefore reasonable to further dismantle the observed average accounts of migrants’ individual net tax payments in Denmark. With the available data, it is possible to differentiate between the balance of western and non-western migrants of the first generation (see Figure 9).³⁴ Both groups’ profiles show the plausible, bell-shaped form over the course of a lifespan, as can be seen through the cross-section analysis. Not surprisingly, western migrants’ net tax payments do not differ significantly from those of natives in the same age group. At most, a slightly more unfavorable fiscal position is noticeable at the beginning of the working life. This could indicate a phase of labor market integration after migration, which translates to a minor backlog in terms of income.

³⁴ In principle, the *Lovmodel* also provides information regarding the fiscal position of the second generation of migrants in Denmark. The respective age profiles, however, suffer from the relatively small number of observations and thus are incomplete for the older age groups. Consequently, we calculate the generational accounts solely based on the first generation’s generational profiles. Regarding the younger generation, this might lead to an underestimation of the financial contribution to public funds. An economic integration of migrants in terms of a gradual convergence with the respective level of age-specific net payments of the native population remains impossible.

Figure 9: Net tax payments of western and non-western migrants and Danes in 2000, distributed by age



Source: Zimmermann/Hinte (2005).

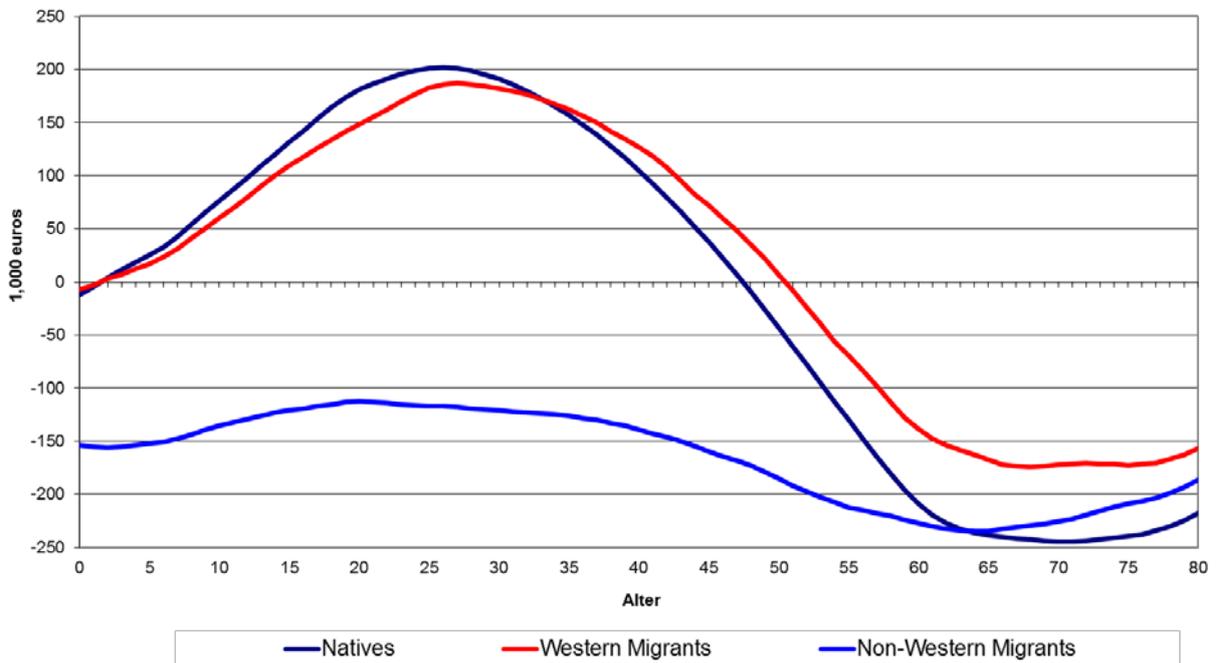
In contrast, the balance of non-western migrants reflects their poor integration into the Danish labor market. Although it also shows the typical pattern of initial growth and subsequent decline of age-specific net tax payments over the course of the working life, the trend is considerably weaker. This pattern makes it obvious that the share of employees who pay taxes and social security contributions (which vary by age) as part of their wages is relatively low among the non-western migrant population. Conversely, a large proportion of the non-western migrants do not participate in the labor market on an ongoing basis. This results in a high average receipt of transfer payments, which is mostly consistent throughout the working-age life. Combined with employees' lower fiscal capability, this results in an unfavorable outcome: Under today's financial policy conditions, non-western migrants in Denmark do not positively contribute to public funds at any point in their life.

Denmark's fiscal burden caused by non-western migrants is even more distinct when taking into account the present value of the total average of net transfers over remaining lifespans. Similar to the German generational accounts, we presume that the state will continue to pursue the same financial policy in the coming years. Future individual contributions are updated annually (using a 1.5 percent presumed real economic growth rate) and transferred into the present with a 5 percent annual discount rate.

All three population groups show the same wavelike pattern for the generational balance that we already observed in the German case. The net tax payments over the lifespan of Danish natives born in the initial year (2000) appear to be almost completely balanced. However, the generational accounts' profile shifts upwards compared to Germany (*see Figure 10*). As described earlier, Denmark's balance is significantly negative. In a complete calculation, the generational balance of the youngest population groups would be even more negative.

The fiscal policy strategy cannot withstand for long, given that as a result the national deficit would rapidly rise. If (in the long term) a necessary raise of the net tax level affected all parts of the population, migrants' fiscal position in Denmark could improve in the future.

Figure 10: Generational balance of migrants and Danes in 2000, distributed by age



Source: Zimmermann/Hinte (2005).

However, as long as Denmark maintains its current fiscal policy, migrants' net contributions will remain negative. Migrants from western countries are a relief for the public budget. Their age-specific net payments differ only slightly from those of Danes of the same age groups. The younger population's relatively low net tax payments translate to relatively low net transfers made to the retired population. If you consider both population groups' varying demographic structures, western migrants are even at a distinct advantage compared to Danish natives. The current value of the average payments over western migrants' lifespans is 39,700 euros per capita and only 16,600 euros per capita for Danes (*see Table 13*). The reason behind this is that the generations who contribute the most during the occupational activity phase are more numerous in the migrant case: 73.3 percent of western migrants are in this phase, compared to only 59.4 percent of Danes. Therefore, there is a double relief effect in the case of pensioners. First, the average net transfers per western migrant over the age of 60 is lower (166,100 euros) than the Danish figure (236,300 euros). Additionally, there are less western migrants in the pensioner population.

Table 13: Net tax payments per capita in Denmark in 2000 of selected parts of the population over their lifespans

Age	Danes	Total migrants	Western migrants	Non-western migrants
< 20	70,400	-120,000	58,800	-138,800
20-60	64,400	-68,400	83,300	-138,900
60-80	-236,300	-191,100	-166,100	-224,400
Total	16,600	-93,300	39,700	-142,900

Source: Zimmermann/Hinte (2005), based on Wadensjö/Gerdes (2004).

Denmark could improve its public budget even if non-western migrants keep receiving net transfer payments at the current level. As the curve of the generational accounts shows, every present generation receives per capita net transfers currently valued at 100,000 euros over their remaining lifespan. In terms of non-western migrants who live their whole lives in Denmark, the redistribution at natives' cost accounts to 150,000 euros per capita (as long as they do not adjust their behavior to that of Danes or of western migrants). The fiscal burden is slightly lower if you consider the present non-western migrant population's demographic structure. Until the end of their lives, this population group raises the need for funding the public budget by 142,900 euros per capita. This figure is not higher because the share of non-western migrants between 10 and 30 years old is above average—therefore the costs for transfer payments are not as high, given that this age group produces relatively little transfer costs.

As these young age groups of non-western migrants have not yet started to work or are just beginning their working life, there is a chance to reduce the fiscal burden by increasing efforts to integrate these migrants. Public funds used to achieve this goal can generate considerable economic benefits through increased tax payments and contributions, as well as reduce transfer payments for subsistence protection. Another concept to relieve the public budget's financial burden would be to offer financial subsidies for returnees who plan to build a new existence in their origin countries if they have failed to establish themselves in the Danish labor market.

Therefore, at first glance there are surprising results while comparing migrants' net contributions to both German and Danish public funds. While migrants in Germany presently make significant positive contributions—especially in the long term—considering the emerging population aging on a massive scale, the outcome for Denmark is clearly negative. This gap is surprising since relatively generous social security systems and a high taxation of the labor factor characterize both countries. Thus, both a lack of incentives to work and a tendency towards the unfavorable self-selection of migrants obstruct migrants' integration.³⁵

Thus, neither country's fiscal institutions probably supply the primary reasons for the observed differences. Rather, one should note that Germany and Denmark experienced completely different migration developments. In the case of Germany, we looked at a relatively homogenous, long-established migrant population. However, there has been a

³⁵ See Borjas (1987).

relatively large influx of non-western migrants over the last decade, whose net contributions to public funds are probably much less positive than the presented generational balance for Germany would suggest. Nevertheless, compared to the population of the guest workers and their descendants, the importance of these new migrants is rather small. In terms of the established population, the integration process has progressed so far that—apart from the remaining labor market deficits—their fiscal position is no longer that different from that of natives. However, the integrated western migrant minority in Denmark faces a non-western migrant, refugee and asylum seeker majority, who on average show shorter residence times or are currently undergoing integration. The main question here is how fast this integration can progress to reduce the dependency on public transfer payments to a normal level.

7. Conclusion

The social security systems in Germany and Denmark function according to different policies. For instance, in contrast to the German model, Danish unemployment insurance is voluntary and predominately funded by general taxes. For low-earners—in this case, most of the non-western migrants in Denmark—this policy results in wage replacement payments of up to 90 percent of the previous income (greatly exceeding the German level) and therefore provides little incentive to continue working in the labor market. The lengthy unemployment assistance timeframe (much longer than in Germany) further supports this tendency. This has continued to hold true in Denmark even after implementing a measure in 1998 that cut the maximum duration of wage replacement payments almost in half (currently fixed at 4 years). Only in the last few years has Denmark incorporated elements of workfare into its social security policies, thereby tying the receipt of payments to services in return, in the form of qualifications or employment. In the middle term, this could provide some important employment incentives, as long as the actual focus is on getting people to work.

In contrast, German unemployment insurance differs depending on the individual claim: The state calculates the benefit amount according to the individual's occupational history and age. Consequently, migrants are often only eligible for a shorter entitlement period, due to their more favorable age structure combined with a higher average unemployment rate. In 2004, Germany eliminated unemployment assistance, which taxes had financed, and replaced it with the unemployment benefit II, which is combined with welfare benefits. Hence, the German and Danish structures will become more similar to a certain extent. However, this change will further cause low-paid migrants to be better off without work in Denmark, in contrast to Germany.

The Danish system currently does not allow any means of extra income, supplementary to welfare benefits, while German law once again adjusted in 2004/2005 to expand such possibilities. Denmark relies on the new workfare mechanisms—or in the case of new migrants, on integration courses—that can entitle someone to transfer payments or integration allowances. Furthermore, Denmark's pension schemes are unrelated to previous contributions and occupational activities, thereby again benefitting low earners. A basic pension scheme characteristically results in lower statutory pension levels, but the obligatory ATP insurance and the low burden of contributions balances this out.

Overall, the German social security system has focused on implementing labor market participation throughout all important components, with the exception of welfare benefits. This focus results in a more difficult start for migrants than in Denmark, where we have seen

that unemployment insurance is voluntary and there are higher numbers of transfer recipients for lower income groups. Many welfare recipients in Denmark benefit from avoiding unemployment insurance and instead opting for welfare benefits. The likelihood of non-western migrants receiving welfare decreases with the extent to which they are tied to the labor market, the period of residence and their language skills.

A comparison of the fiscal consequences of the influx of non-western migrants for both countries is not possible due to the lack of corresponding German data. In the case of Germany, one must use data from the migrants' origin countries, since there is representative data for total migrants and separate information on their western or non-western origin.

In Germany, there was a positive balance in 1996 for migrant families led by a household head originally from Turkey, Yugoslavia, Greece, Spain or Italy. The average financial contributions per capita of this part of the population (under the age of 80) were 2,100 euros—Germans contributed only slightly more to public funds, averaging 2,700 euros. Through creating a generational balance by combining the age-specific net tax payments with the statistical life expectancy, the economic benefits of immigration to Germany become apparent: On average across all age groups, migrants' net contribution is 35,500 euros per capita over their lifespan. In contrast, Germans are net recipients of 14,000 euros per capita on average, due to their adverse demographic structure. Therefore, the natives profited from the massive retribution in their favor.

In Denmark, the fiscal position of migrants in 2000 was much worse than in Germany. While the Danes contributed 4,000 euros per capita on average, the migrant population received net transfer payments amounting to 1,400 euros per capita. This is due to the materially generous social security system in Denmark, low labor market participation and the use of public services (such as integration programs). The migrants' negative generational accounts correspond to these problems. On one hand, migrants receive net transfer payments amounting to 93,300 euros throughout their statistical lifespan, whereas Danes contribute net tax payments of 16,600 euros.

If this is already an unfavorable outcome compared to Germany, the perspective further worsens for Denmark once we consider non-western migrants. The redistribution in their favor amounted to 142,900 euros in 2000, while western migrants contributed 39,700 euros, thus even surpassing the natives' balance. The analysis documents the particularly poor integration of non-western migrants into the Danish labor market. Even if corresponding studies also showed a negative balance of these migrants in Germany, the need for suitable integration measures—and a more targeted integration policy for the future—is specifically urgent in Denmark.

References

- Akbari, A. (1989), Benefits of Immigrants to Canada: Evidence on Tax and Public Services, *Canadian Public Policy*, 15, 424-435.
- Auerbach, A./Jagadeesh Gokhale/Laurence Kotlikoff (1991), Generational Accounting: A Meaningful Alternative to Deficit Accounting, in: D. Bradford (ed.), *Tax Policy and the Economy*, Vol. 5, Cambridge: MIT Press, 55-110.
- Auerbach, A./J. Gokhale/L. Kotlikoff (1992), Generational Accounting: A New Approach to Understanding the Effects of Fiscal Policy on Saving, *Scandinavian Journal of Economics*, 94, 303-318.
- Auerbach, A. J./P. Oreopoulos (2000), The Fiscal Impact of US Immigration: A Generational Accounting Perspective. In H. Poterba (ed.), *Tax Policy and the Economy*, Vol. 5, Cambridge: MIT Press, 123-156.
- Beauftragte der Bundesregierung für Migration, Flüchtlinge und Integration (2003), Migrationsbericht 2003 im Auftrag der Bundesregierung. Berlin.
- Bird, E. J./H. Kayser/J. R. Frick/G. G. Wagner (2001), The Immigrant Welfare Effect. Take-up or Eligibility?, *International Migration Review*, 35, 726-748.
- Bonin, H. (2001), *Generational Accounting – Theory and Application*. Berlin: Springer.
- Bonin, H. (2002), Eine fiskalische Gesamtbilanz der Zuwanderung nach Deutschland, *Vierteljahreshefte zur Wirtschaftsforschung*, 71, 215-229.
- Bonin, H./B. Raffelhüschen/J. Walliser (2000), Can Immigration Alleviate the Demographic Burden?, *Finanzarchiv*, 57, 1-21.
- Borjas, G. J. (1987), Self-Selection and the Earnings of Immigrants, in: *American Economic Review* 77, 531-553.
- Collado, M. D./I. Iturbe-Ormaetxe/G. Valera (2004), Quantifying the Impact of Immigration on the Spanish Welfare State, *International Tax and Public Finance*, 11, 335-353.
- Danish Ministry of Economics and Business Affairs (2000), *The Law Model*. Copenhagen.
- Danish Ministry of Finance (2003), *Lovmodellen*. Copenhagen.
- Feist, K./B. Raffelhüschen (2001), Möglichkeiten und Grenzen der Generationenbilanzierung, *Wirtschaftsdienst*, 80, 440-447.
- Fertig, M./C. M. Schmidt (2001), First- and Second-Generation Immigrants: What Do We Know and What Do People Think, in: R. Rotte/P. Stein (eds.): *Migration Policy and the Economy: International Experiences*, Neuried: ars et unitas, 179-218.
- Gustaffson, B./T. Österberg (2001), Immigrants and the Public Sector Budget: Accounting Exercises for Sweden, *Journal of Population Economics*, 14, 689-708.
- Haisken-deNew, J./F. Büchel/G. Wagner (1997), Assimilation and other Determinants of School Attainment in Germany: Do Immigrant Children Perform as Well as Germans?, *Vierteljahreshefte zur Wirtschaftsforschung*, 66, 169-179.
- Hansen, H./H. C. Jensen/C. Larsen/N.-K. Nielsen (2002), Social Security Benefits in Denmark and Germany – With a Focus on Access Conditions for Refugees and Immigrants. A Comparative Study, Copenhagen: The Rockwool Foundation Research Unit.
- Haustein, T. (2002), Ergebnisse der Sozial- und Asylbewerberleistungsstatistik 2000, *Wirtschaft und Statistik*, Nr. 2. Wiesbaden: Statistisches Bundesamt.
- Jensen, S. H./U. Nødgaard/L. H. Pedersen (2002), Fiscal Sustainability and Generational Burden Sharing in Denmark, *Nordic Journal of Political Economy* 28, 43-60.

- Kayser, H./J. R. Frick (2000), Take it or Leave it: (Non-)Take-up Behaviour of Social Assistance in Germany". *DIW Discussion Paper*, No. 210. Berlin: DIW.
- Kotlikoff, L. J. (1992), *Generational Accounting. Knowing Who Pays, and When, for What We Spend*. Glencoe (Ill.): The Free Press.
- Nielsen, N.-K. (2002), Overførselsindkomster til indvandrere, in: G. V. Mogensen/P. C. Matthiessen (eds.): *Indvandrerne og arbejdsmarkedet. Mødet med det danske velfærdssamfund*. Copenhagen: Spektrum, 198-258.
- Nielsen, N.-K. (2004), Social Transfers to Immigrants in Germany and Denmark, in: T. Tranæs/K. D. Zimmermann (eds.), *Migrants, Work, and the Welfare State*. Odense: University Press of Southern Denmark, 241-280.
- Parsons, D. O./T. Tranæs/H. B. Lilleør (2001), *Voluntary Public Unemployment Insurance*. Copenhagen: EPRU.
- Pedersen, S. (2000), Overførselsindkomster til indvandrere, in: G. V. Mogensen/P. C. Matthiessen (eds.): *Integration i Danmark omkring årtusindskiftet. Indvandrernes møde med arbejdsmarkedet og velfærdssamfundet*. Aarhus: Aarhus University Press, 160-207.
- Poschner, H. (1996) Die Effekte der Migration auf die soziale Sicherung, Weiden.
- Riphahn, R. (1998), Immigrant Participation in the German Welfare Program, *Finanzarchiv*, Vol. 55,163-185.
- Riphahn, R. (1999), Immigrant Participation in Social Assistance Programs: Evidence from German Guest workers, *CEPR Discussion Paper* No. 2318. London.
- Riphahn, R. (2001), Rational Poverty or Poor Rationality? The Take-up of Social Assistance Benefits, *Review of Income and Wealth*, series 47, No. 3, 379-398.
- Roodenburg, H./R. Euwals/H. ter Rele (2003). *Immigration and the Dutch Economy*. The Hague: CPB.
- Schmidt, C. (1997), Immigrant Performance in Germany: Labor Earnings of Ethnic German Migrants and Foreign Guest-Workers, *The Quarterly Review of Economics and Finance*, 37, 379-397.
- Simon, J. (1984), Immigrants, Taxes and Welfare in the United States, *Population and Development Review*, 10, 55-69.
- Sinn, H.-W./G. Flaig/M. Werding, (2001), EU-Erweiterung und Arbeitskräftemigration – Wege zu einer schrittweisen Annäherung der Arbeitsmärkte. Ifo-Beiträge zur Wirtschaftsforschung Nr. 2, München.
- Tranæs, T./K. F. Zimmermann (eds.) (2004), *Migrants, Work, and the Welfare State*, Odense: University Press of Southern Denmark.
- Ulrich, R. (1992), Der Einfluß der Zuwanderung auf die staatlichen Einnahmen und Ausgaben in Deutschland. In: Buttler, Gunther, Hans-Joachim Hoffmann-Nowotny, Gerhard Schmitt-Rink (eds.), *Acta Demographica*, Heidelberg, 189-208.
- Voges, W./J. Frick/F. Büchel (1998), The Integration of Immigrants into West German Society: The Impact of Social Assistance, in: H. Kurthen/J. Fijalkowski/G. G. Wagner (eds.): *Immigration, Citizenship and the Welfare State in Germany and the United States*. London: JAI Press, 159-174.
- Wadensjö, E./C. Gerdes (2004), Immigrants and the Public Sector in Denmark and Germany, in: T. Tranæs/K. F. Zimmermann (eds.), *Migrants, Work, and the Welfare State*, Odense: University Press of Southern Denmark, 315-252.
- Zimmermann, K. F./H. Hinte (2005), *Zuwanderung und Arbeitsmarkt. Deutschland und Dänemark im Vergleich*, Berlin/Heidelberg: Springer.