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## Saving the Belgian welfare state through immigration?

A simulation of introducing Canadian immigration policies in Belgium

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### *Abstract:*

Since 2007 the newly created Ministry of Migration tries to set up a comprehensive immigration policy in Belgium, with as aims to tackle the problem of labor market shortages for certain professions and to help maintaining the sustainability of the welfare state. Immigration policies in other countries, and especially Canada, are repeatedly mentioned as examples worth following. This paper wants to contribute to the debate by providing an estimate of the opportunities and constraints of implementing a Canadian-like immigration strategy. In Belgium, microsimulation has not yet been used to analyze immigration policies. Our calculations are not intended as exact prognoses but as indicative estimates, providing a framework for evaluating policies and discussing future paths. We develop a static intergenerational model, using data from EU-SILC. We estimate for each individual his/her dependency on (i.e. costs) and contribution to (i.e. the benefits) the Belgian system of social security, using the Belgian tax-benefit model MISIM. We then compare the balance of those costs and benefits between the autochthonous population and the current stock of foreign born migrants. This serves as our baseline. Next, we compare our baseline with a scenario in which we estimate the effects of the introduction of Canada-inspired criteria for economic immigration (e.g. entry based on education level, country of origin, etc.). By applying a shift-share model we adapt the current stock of immigrants to those criteria and estimate the size and direction of changes in net transfers.

### *Key words:*

migration, intergenerational calculations, fiscal impact

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# 1. In search for immigration policies ...

Since 1974 there is an official labor immigration stop in Belgium. For three decades immigration policies have been a rather uncoordinated domain, suffering from a dramatic lack of data and supporting research. Since 2007 the newly created Ministry of Migration tries to set up a comprehensive immigration policy, which should tackle the problem of labor market shortages for certain professions. This aim is supported by the argument that those immigrants will help to maintain the sustainability of the welfare state. This paper wants to contribute to the debate by providing an estimate of the fiscal effects of different groups of immigrants.

Belgium has a long immigration history with people coming from different countries and for different reasons. Significant heterogeneity regarding origin and residence status exists. The first post-war immigration wave was work-related with guest workers from neighbouring countries, and predominantly from Italy and Morocco. Though immigration for skilled occupations remained possible, a stop to the recruitment of labour migrants outside of the European Community was introduced in 1974. The migration stop in 1974 did not mean that immigration became less important. Other types of migration increased instead. Inflow shifted towards immigration for family reasons and subsequently also humanitarian migration developed (Martiniello and Rea, 2001). Belgium became one of the main destination countries for asylum seekers (peaking at 25,000 applications in 1993 and almost 45,000 in 2000).

An increasing part of the population in Belgium is foreign-born. Today, Belgium has one of the larger immigrant communities in Europe. In 2005 the share of foreign born in the total legal population accounted for 12.1% (1,319,302 individuals) (SOPEMI, 2008). In 2005 more than 90,000 foreign immigrants came to Belgium: 45% of the total influx was from EU-15 member states (CGKR, 2008). Among the non-EU-25 immigrants Moroccan, Turkish and American were most prevalent (SOPEMI).

The labour market situation of immigrants differs considerably if one considers country of origin. Whereas the employment rates of immigrants from the EU-15 have converged towards those of natives, the gaps have remained constant for immigrants born outside EU-15. Belgium has a very significant employment rate gap between non-EU27-born migrants and natives (among the highest in the European Union) (Münz, 2008).

Since some years there is a renewed call to facilitate economic immigration. In this context Canada is often cited as a good policy example with its well-defined economic immigration

program. This program is part of Canadian immigration regulations. They provide for the admission of three categories of immigrants: economic class (independent immigrants admitted on the basis of skill, capital and labor-market requirements), family class (closely related persons) and refugees.

The Immigration and Refugee Protection Act (November 2001) emphasizes on the selection of immigrant with high levels of education and skill flexibility (Ray, 2005). The economic class comprises the skilled worker class and business immigrants. An applicant is assessed under the skilled working class according to various factors (using a score system) that will indicate whether there is a strong likelihood that the applicant and dependents will successfully establish in Canada. The business immigration program includes investors, entrepreneurs and self-employed. Under the family class, current sponsorship programs promote the reunion in Canada of Canadian citizens and permanent residents with their close relatives. Prior to 1990, family-class applicants dominated new immigration flows.

Over the last years immigration in Canada has become the main source of population growth. Between 2001 and 2006, Canada's foreign-born population increased by 13.6%, compared with 3.3% for the Canadian-born population during the same period. At the time of the 2006 census, 6,186,950 foreign-born permanent residents lived in Canada. They represent 19.8 % of the total population (Chui ea, 2005). The origin of immigrants to Canada has manifestly changed over the last decades. Today the most important inflow comes from Asia (including the Middle East) in contrast to dominated migration from Europe in earlier years. In 1971 only 12.1% came from Asia and 61.6% originated from Europe (most pertinent from UK). By 2006 only 16.1% came from Europe and 58.3% from Asia. An additional 10.6% of newcomers to Canada were born in Africa.

The labor force participation of the foreign born converges to those of the Canadian-born population. For instance, 85.2 percent of male immigrants aged 25 to 44 who arrived in Canada between 1996 and 2001 participate in the labor force compared to 92.5 percent of Canadian-born men in the same age bracket. Hence, the employment gap between immigrants and natives is much smaller in Canada than in Belgium. One of the reasons might be the high education of immigrants. Almost 36 percent of immigrants (census 2001) held a university degree compared to 13.8 percent of the Canadian-born population (Ray, 2005)<sup>1</sup>.

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<sup>1</sup> Nevertheless, a cleavage between immigration policy intent and outcomes exists due to the mismatch between the skill and education levels of economic class migrants and labor market performance (Ray, 2005). In spite of a relatively high human capital of immigrants, a considerable and sustained income difference persists between immigrants and the Canadian-born population (Grant & Sweetman, 2004). Equally disturbing is the growing incidence of poverty among immigrants in Canada. The increase in the low-income rate for recent immigrants

Given these strong labour market and education indicators, we use the Canadian situation as a source of inspiration for our simulations. In this paper we test the following hypotheses:

1. a) Education and labour market performance are important determinants for the net transfers to social security;  
b) These two variables explain the difference in net transfers between immigrants and natives;
2. Increasing the education level and labour market performance of immigrants will improve the net contributions of immigrants in Belgium.

But first we give a brief overview of other studies that use a static intergenerational model (see section 2). In section 3 we describe the data and the methodology. Next, we estimate for each individual his/her dependency on (i.e. costs) and contribution to (i.e. the benefits) the Belgian system of social security. We then compare the balance of those costs and benefits between the autochthonous population and the current stock of foreign born migrants and look for the determinants of the differences (sections 4 and 5). By applying a shift-share model in section 6 we adapt the current stock of immigrants to the Canada-inspired immigration policy criteria and estimate the size and direction of changes in net transfers. We look at the effect of changing education levels of immigrants on their net contribution to social security, and thus provide an indication to what extent immigration can help to save the welfare state.

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was most significant among university-educated immigrants with a 44% change in the period 1990-2000 (Picot, 2004)

## 2. Measuring the fiscal impact of immigrants: approaches and experiences

There are various ways to study the fiscal impact of immigration for the host countries. We present here a brief overview, based on Corluy & Verbist, 2007.

### 2.1 *Static and dynamic models*

The various methods can be categorised in two broad groups, in what we call static and dynamic models. With *dynamic* models one makes the budgetary analysis through intergenerational calculations based on projections of the size and composition of future immigrant flows. The dynamic models in their turn can be divided in two subgroups. On the one hand there are those models in which the actual value of the net contribution of an individual immigrant is calculated from their time of arrival onwards. This means that a life-cycle perspective is applied. The net contribution (which can be positive or negative) is determined as the actual value of future tax payments minus future receipt of benefits and marginal consumption of public services over their future length of stay in the host country. In this approach a new immigrant is considered and evaluated as a kind of public investment (Roodenbrug et al., 2003; Storesletten, 2003). On the other hand there are dynamic models that remain on the macro level, and calculate the total effect of immigration on the budgetary balance of public finance. The total effect on the public sector of immigration is calculated as the effect of a hypothetical flow of immigrants on the public budget (Roodenbrug et al., 2003; Auerbach & Oreopoulos, 1999; Collado et al., 2004).

With a *static* model one makes a snapshot of the budgetary situation in a short, well-specified period. In this cash-flow approach one measures the cost of immigrants by calculating for one (or more) calendar year(s) government revenues and expenditures that are generated by the group of immigrants present in the host country. The basis is provided by representative survey data, in which immigrants are identifiable (be it in practice often with limited detail). In this paper we will apply a static analysis. The main motives for this approach are the explorative character of this initial calculation and the limited migrant-specific information in the sample. Moreover, static models require less assumptions than dynamic calculations with respect to the composition of future migration flows. We briefly discuss in the next section existing studies that use this approach and which form our source of inspiration.

## **2.2 Applications of static models in other countries**

Studies that use a static model to calculate the budgetary effect of immigration, exist for the United Kingdom, Denmark and Germany. Gott and Johnston (2002) use data from the Labour Force Survey for their static analysis on first generation foreign-born immigrants. They estimate that immigrants in the United Kingdom provide a positive net contribution of 10%: they pay £31.2 billion in contributions and use for £28.8 billion benefits and public goods. Gott and Johnston attribute this clear net positive effect of immigration to the strong labour market position of an important share of immigrants. Consequently, average income of the total group of immigrants is above that of the autochthon population. The study of Gerdes and Wadensjö (2006) on Denmark is based on the data of the Ministry of Finance's Law Model for the period 1991-2001. This data set contains a sufficiently large group of immigrants to calculate the total budgetary effect for Western and non-Western immigrants of the first and the second generation. The analysis shows that net contributions to the public sector are positive for Danes and Western immigrants, whereas the net contributions for non-Western immigrants are negative. As Gerdes and Wadensjö perform their static analysis for ten consecutive years, they can evaluate the budgetary effect of immigrants over time, without many extra assumptions with respect to the evolution in immigration flows. Bonin (2006) builds age specific profiles for different nationality groups for 33 different types of taxes and benefits in Germany, using the representative data set of the SOEP (Socio-Economic Panel). On average an immigrant in Germany pays around 2,000 Euro more in contributions than that s/he takes out of the system (figures for 2004).

The empirical analyses in other countries lead to divergent results, which makes it difficult to predict on this basis the possible outcomes of a similar study for Belgium. However, these studies help us to identify the relevant variables that determine the budgetary result. We distinguish three types of socio-economic explanatory variables:

- 1) Migration-specific characteristics, such as entry channel, length of stay, country of origin;
- 2) Demographic characteristics, such as age, gender, fertility rate;
- 3) Labour market characteristics, such as employment and education level.

The interaction between contribution to and dependency on social security provisions in the host country is to a large extent determined by these three types of variables (see e.g. Bird et al., 1999; Hansen and Lofstrom, 1999).

## 3. Methodology

### 3.1 Data

Our empirical analysis is performed on the data of the Survey on Income and Living Conditions of the EU, which is a representative sample of private households in each of the EU-countries. We use the data from Belgium for 2004 (with income variables referring to the previous year, namely 2003). The SILC-2004 of Belgium contains 12,971 individuals. Two variables in the SILC can be used to define migrants, namely country of birth and citizenship. In the dataset these variables are subdivided into the host country, another EU country or a non-EU country. Unfortunately, no further distinction can be made according to migration status (labour migration, refugee, etc.). In this paper we focus on country of birth as criterion to define immigrants. Only respondents older than 15 years had to answer questions concerning origin (10,380 cases). Of them, 8,816 were born in Belgium, 569 were born in an EU country and 740 were born in a non-EU country. Descendants of immigrants, who are born in Belgium (second generation), fall in general into the category of ‘native Belgians’. Consequently a part of those immigrants who are most successfully integrated to the Belgian labor market is not categorized as immigrants. We have compared the migrant information in the SILC-data with that in the Labour Force Survey in Belgium (OECD, 2008) and administrative data source (ADSEI, 2008), in order to assess the degree to which the immigrants in the sample are representative of those in the host country. Overall correspondence appears to be good.

We calculate the net balance of social security contributions paid minus public transfers received for both natives and immigrants. To determine the contribution to the fiscal budget we use the microsimulation model MISIM (Verbist, 2003) to calculate social security contributions (employees, employers and self-employed). The dataset covers an extensive overview of social benefits. We have included different forms of unemployment benefits, old-age pensions, family allowances and sickness and disability benefits. Unfortunately, there is no information on the use and benefit from health care services. These expenditures, which are funded to a considerable extent out of social contributions, are hence not included in our analysis. As we do not take account of these health care expenditures, we also exclude the corresponding social insurance contributions from our analysis, so that our total balance has a zero net effect. After reweighing the balance of contribution and dependency to a total net effect of zero, we can estimate individual net transfers to/from social security provisions. Thus this exercise remains an underestimation of the total effective fiscal balance of social security, which should be borne in mind when interpreting the outcomes.

### ***3.2 Different steps of the analysis***

Our first hypothesis (a. and b.) will be tested in the first two steps, whereas the third step focuses on the second hypothesis. In the first step we give a static overview of the fiscal impact of the current stock of natives and immigrants in Belgium for the reference year 2004. As some of the cash flows between individuals and the state strongly depend on age and because current age structures differ considerably between Belgian and immigrant populations, we apply a categorization in age groups (of 10 years) for calculation of fiscal impact. Consequently, the net contribution to public budgets per age group equals the sum of age-specific social security contribution payments per capita minus average transfer receipt (see Bonin, 2006; Gerdes & Wadensjö, 2004).

The public sector redistributes resources among individuals and groups of individuals on the basis of factors such as sex, family status, age and labor market outcomes. In a second step we have applied a Oaxaca decomposition technique in order to identify the major determinants of the sign and size of net transfers. A Oaxaca decomposition (Oaxaca, 1973) explains the gap in the means of an outcome variable between two groups. The objective is to explain the differences between natives and non-EU immigrants with respect to fiscal achievements. We estimate the effect of socio-economic effects on probability to generate positive or negative net transfers as well as on the level of fiscal impact within both groups.

In the last step we simulate the effect of changing the current stock of immigrants in terms of education and employment on their fiscal impact of immigrants. We have chosen these two parameters because of their significant effect on (the explained part) of fiscal impact and because of their relevance for economic immigration policies.

## 4. Immigration and net transfers within the social security system in Belgium

We calculate the fiscal impact of immigration in Belgium for the social security system. **Table 1** shows the average net transfer per person aged 16 years and older for Belgians, EU-born and non-EU born immigrants in 2004. Non-EU immigrants pay on average €410 less in contributions than they received in social benefits. EU immigrants, on the other hand, provide a positive net contribution to the Belgian social security budget €160. Compared to natives, non-EU immigrants on average tend to use less social benefits (a difference of around €800, or 20%). But as their social security contributions are on average also substantially lower (around €1,200), this results in a negative net transfer. Consequently, the benefits/contributions ratio (further on referred to as ‘fiscal dependency ratio’, which we use as an indicator for the relative fiscal budget position of immigrants) is well above 1.

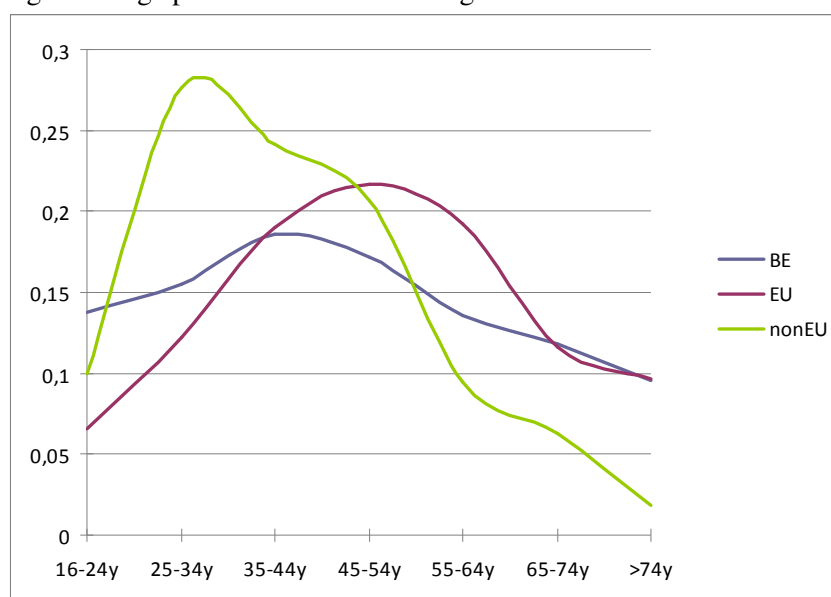
Table 1: Net transfer per person for different groups, total population (>16y)

	BE	EU	non-EU	total
<i>Contribution</i>	3,969	4,160	2,720	3,900
<i>Benefits</i>	3,949	4,000	3,130	3,900
<i>Net fiscal impact</i>	20	160	-410	0
<i>Fiscal dependency ratio</i>	0.995	0.962	1.152	1.000

Source: EU-SILC, 2004, BE

Calculated over the aggregate non-EU born population (522,207 individuals or 6.26% of the total population aged 16 or older), this amounts to a total deficit of -215 million €.

Figure 1: Age profile natives and immigrants

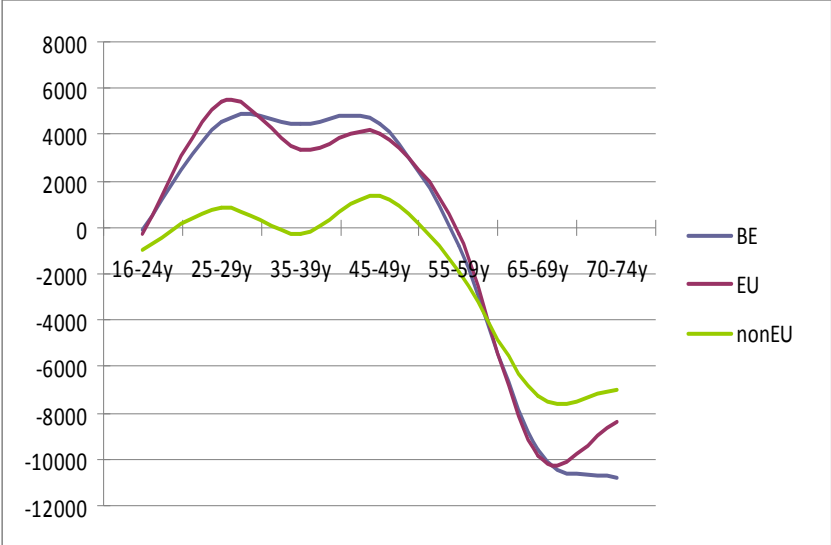


Source: EU-SILC, 2004, BE

As immigrants and natives have a different age profile (see **Figure 1**), and as the use of social benefits and the contributions to social security are to an important extent driven by the life cycle, we present the net transfer for 10-year age categories for the three population groups (see **Figure 2**).

Irrespective of country of birth, a characteristic age pattern emerges. The net transfers of children are negative, mainly due to the lack of contributions and use of child allowances. Upon entering working life, the net transfer becomes positive and is highest for prime-age individuals. For individuals aged 50 and older, net transfers decrease considerably. At retirement age, the average individual becomes a net recipient of benefits (mainly pensions). Net transfers are positive for natives and EU immigrants from 20 until 60. Moreover, the average net fiscal impact is very similar for natives and EU immigrants. The net transfers are slightly higher for EU immigrants in the age group 25-34 and somewhat lower in the age group 35 until 55 years, but overall both groups have a very similar age profile. This distribution contrasts sharply with the age profile of non-EU immigrants: only in the age group 25-34 and 45-54 they have a positive net fiscal impact. In case of a positive contribution, the level remains limited. Additionally, also the switch from negative to positive fiscal impact and vice versa occurs at different moments in the lifecycle in comparison with the native (and EU-born) population: it starts at a later stage and ends sooner in time. This means they start to contribute at an older age and become dependent at a younger stage. Dependency for elderly non-EU immigrants is on average, however, less than for the other two groups. The results for those aged 60 or more are based on a limited number of observations for the immigrant groups (respectively 150 and 90 cases for EU and non-EU immigrants), and need to be handled with caution.

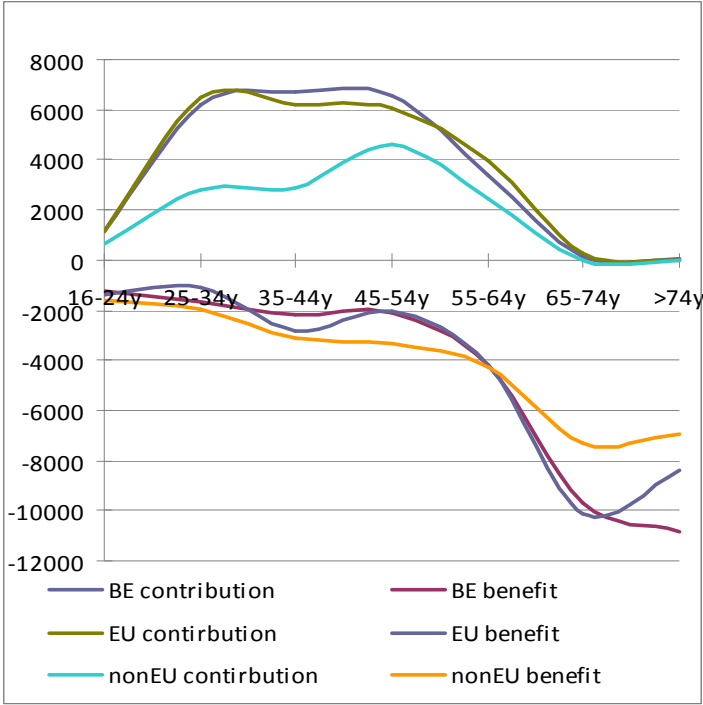
Figure 2: Net transfer per person (10-year averages) for Belgian natives, EU- and non-EU-immigrants



Source: EU-SILC, 2004, BE

We now decompose the total net effect into contributions (employer and own contributions) and benefit dependency over the same age groups (see **Figure 3**). Largest differences between the non-EU group and the other two groups are observed for the contribution side: non-EU immigrants pay noticeably fewer contributions, and this is most pronounced among younger age groups. From the age of 55 onwards the curves of the three groups grow much closer to each other. Non-EU immigrants use more social benefits when younger than 55, but from that age onwards the pattern reverse: the pension they receive are often much lower than those of natives (though we must caution here again for the small numbers).

Figure 3: Contribution and dependency per person (10-year averages) for Belgian native, EU- and non-EU-immigrants



Source: EU-SILC, 2004, BE

Different age categories are clearly characterized by different interactions with fiscal interactions, as shown in the graphs above. Comparison of the net transfers for the total population and those at active age (**Table 2**) underlines the specific age profile of non-EU immigrants and the related effect on fiscal issues.

Table 2: Net transfers for total population and population at active age

	BE		EU		non-EU	
	all	active	all	active	all	active
<i>Contribution</i>	3,969	5,023	4,160	5,243	2,720	2,955
<i>Benefit</i>	3,949	2,240	4,000	2,559	3,130	2,766
<i>Net fiscal impact</i>	20	2,782	160	2,685	-410	189
<i>Fiscal dependency ratio</i>	0.995	0.446	0.962	0.488	1.152	0.936

First of the all, the average contribution of non-EU immigrants increases only to a very limited extent when we drop non-active individuals. For natives and EU immigrants the increase in contribution is five times higher. But secondly, the decrease at the dependent side also remains confined. That indicates the little share of pension related welfare interaction for non-EU immigrants and moreover the relatively high take-up of benefits at active age. This finding is confirmed by the dependency ratio. At active age, the proportion of benefits over contribution is 0.94 for non-immigrants, whereas it is only 0.55 for natives (necessary to finance demographic change). The relative change between total population and population at active age is consequently more definite for natives.

## 5. Determinants of contribution and dependency

After the description of the age profiles of net social security transfers, we now investigate the different determinants of these transfers. The aim is to understand how much of the difference between immigrants and natives in net transfers to the public sector can be explained by differences in socio-economic characteristics, where we will use the three sets of characteristics distinguished in section 2). Unfortunately, migrant-specific data are limited in SILC. This means that we mainly use the second and third set of characteristics (age, gender and family situation; education level and employment). As the difference in net transfers is most pronounced between natives and non-EU immigrants, we focus on the comparison and explanation of the divergence between these two groups.

The analysis is done in two steps, using a Oaxaca decomposition analysis (Oaxaca, 1973) with net positive and net negative transfers respectively as the dependent variable. Firstly, we estimate the probability on net positive or net negative fiscal impact (see **Table 3** and **Table 4**) for both groups. Secondly, we compare discrepancies in the magnitude of fiscal impact within the groups who obtained positive or negative net contributions (see **Table 5** and **Table 6**).

In order to identify the major determinants of the gap between the means of these outcome variables we estimate the impact of age, sex, marital status, education level, region, employment history and self-reported health as independent variables.

We have used following abbreviations in the analysis:

age_10	age groups of 10 years
sex	respondent has the male sex
mar_stat	respondent is married
PEhigh	respondent has at least tertiary education
PElow	respondent has not accomplished secondary education
DBvla	respondent lives in Flemish region
PLverl	person has ever worked
PHgood	self reported health is good

In **Table 3** and **Table 4** we present the coefficients of the Oaxaca decomposition for probability respectively on positive and negative net fiscal impact. To clear the analysis from the strong effect of age on negative dependency we have performed these calculations on individuals at active age only.

Table 3: Probability positive fiscal contribution, natives and non-EU immigrants (>16y), 2004, BE

Logistic regression						Number of obs = 6278	
Log likelihood = -2903.3197						LR chi2(8) = 2323.57	
						Prob > chi2 = 0.0000	
						Pseudo R2 = 0.2858	
P_fiscall_po	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]		
age_10	-.5102253	.0309922	-16.46	0.000	-.5709689	-.4494817	
sex	.9271553	.0662906	13.99	0.000	.7972282	1.057082	
mar_stat	.5095515	.0707414	7.20	0.000	.3709008	.6482021	
PEhigh	.8399819	.0767904	10.94	0.000	.6894754	.9904884	
PElow	-.7740479	.098655	-7.85	0.000	-.9674081	-.5806876	
DBvla	.3258142	.0661223	4.93	0.000	.196217	.4554114	
PLverl	5.530939	.3174935	17.42	0.000	4.908663	6.153214	
PHgood	.8742428	.076283	11.46	0.000	.7247308	1.023755	
_cons	-4.640238	.3249197	-14.28	0.000	-5.277069	-4.003407	
Non-linear decomposition by countryb_neu (G)						Number of obs = 6903	
						N of obs G=0 = 6278	
						N of obs G=1 = 625	
						Pr(Y!=0 G=0) = .6498885	
						Pr(Y!=0 G=1) = .4128	
						Difference = .2370885	
						Total explained = .13923065	
P_fiscall_ne	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]		
age_10	-.0325948	.00192	-16.98	0.000	-.036358	-.0288316	
sex	.0004093	.0004282	0.96	0.339	-.00043	.0012487	
mar_stat	-.005577	.00085	-6.56	0.000	-.0072431	-.003911	
PEhigh	-.0010411	.0004157	-2.50	0.012	-.0018558	-.0002264	
PElow	.0202799	.0028067	7.23	0.000	.0147789	.0257808	
DBvla	.0133779	.0027585	4.85	0.000	.0079714	.0187844	
PLverl	.1189834	.002841	41.88	0.000	.1134151	.1245517	
PHgood	.0242008	.0022697	10.66	0.000	.0197523	.0286493	

The probabilities on positive fiscal impact differ strongly between natives and immigrants. The estimated probability on a net positive fiscal impact amounts to 0.6499 for native born persons at active age compared to 0.4128 for non-EU immigrants. The explained part of the decomposition technique reflects the mean increase in non-EU immigrants' probability to a positive fiscal impact if they had the same characteristics as natives. Almost 58% of the total gap (or 0.1392 percent points) is due to differences in socio-economic characteristics.

The detailed decomposition reports the contribution of each predictor individually. Most of the explained part of the gap in a net positive fiscal profile is attributable to the gap in labor market history. The low employment rates of non-EU immigrants explain the major part of the difference in the net transfer between this group and the native Belgians. Also, but to a lesser extent, one can notice the significant contribution of differences in low education and health conditions to explain the gap between natives and non-EU immigrants. The younger age structure of non-EU immigrants, on the other hand, diminishes the different probability.

Table 4: Probability negative fiscal contribution, natives and non-EU immigrants (>16y), 2004, BE

Logistic regression						
					Number of obs	= 6278
					LR chi2(8)	= 1300.43
					Prob > chi2	= 0.0000
					Pseudo R2	= 0.1758
Log likelihood = -3047.6774						
P_fiscalI_ne	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
age_10	.0632645	.0290164	2.18	0.029	.0063935	.1201356
sex	-.5997493	.0646428	-9.28	0.000	-.7264469	-.4730517
mar_stat	-.699898	.0694897	-10.07	0.000	-.8360954	-.5637006
PEhigh	-.7316797	.0768872	-9.52	0.000	-.8823758	-.5809836
PElow	.4506995	.0952962	4.73	0.000	.2639224	.6374766
DBvla	-.3411291	.0642849	-5.31	0.000	-.4671251	-.2151331
PLverl	-2.188226	.1156909	-18.91	0.000	-2.414976	-1.961477
PHgood	-.9735759	.0752882	-12.93	0.000	-1.121138	-.8260138
_cons	2.523218	.1484322	17.00	0.000	2.232297	2.81414
Decomposition replications (100)						
----- 1 ----- 2 ----- 3 ----- 4 ----- 5						
.....						50
.....						100
Non-linear decomposition by countryb_neu (G)						
					Number of obs	= 6903
					N of obs G=0	= 6278
					N of obs G=1	= 625
					Pr(Y!=0 G=0)	= .27588404
					Pr(Y!=0 G=1)	= .4528
					Difference	= -.17691596
					Total explained	= -.12596271
P_fiscalI_ne	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
age_10	.0027741	.0012931	2.15	0.032	.0002396	.0053086
sex	-.005408	.0006827	-7.92	0.000	-.0067461	-.0040698
mar_stat	.009623	.0010348	9.30	0.000	.0075948	.0116511
PEhigh	-.0033769	.0005275	-6.40	0.000	-.0044108	-.002343
PElow	-.0157598	.0034467	-4.57	0.000	-.0225153	-.0090043
DBvla	-.0130577	.002516	-5.19	0.000	-.0179889	-.0081264
PLverl	-.0793473	.0035542	-22.32	0.000	-.0863134	-.0723812
PHgood	-.0203404	.0020674	-9.84	0.000	-.0243924	-.0162885

On the contrary, the probability of negative fiscal impact is higher for non-EU immigrants (0.4528) with a -0.1260 explained difference in comparison to natives (total difference of 0.1769). The detailed impact of different socio-economic characteristics shows again a strong effect of employment history. But also health conditions and education explain part of the difference.

After the explanation of the dichotomous variable, we now compare the level of transfers within the group of individuals (natives and non-EU immigrants) with a net positive fiscal impact and those with a net negative<sup>2</sup> fiscal impact. We use the log (to diminish the effect of outliers) of fiscal impact as a dependent variable.

<sup>2</sup> For these calculations we use the absolute value of net average fiscal transfers.

Table 5: Differences in level of positive contribution natives and non-EU immigrants (>16y), 2004

Blinder-Oaxaca decomposition		Number of obs =		4368		
1: countryb_neu = 1						
2: countryb_neu = 2						
lnfiscalI_po	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
Differential						
Prediction_1	8.663373	.0130646	663.12	0.000	8.637767	8.688979
Prediction_2	8.26278	.0643317	128.44	0.000	8.136692	8.388868
Difference	.4005927	.0656449	6.10	0.000	.2719311	.5292543
Decomposit~n						
Explained	.0399896	.0246252	1.62	0.104	-.0082749	.0882542
Unexplained	.3606031	.064738	5.57	0.000	.2337189	.4874872
Explained						
age_10	.0137732	.0094755	1.45	0.146	-.0047984	.0323448
sex	-.0302244	.012491	-2.42	0.016	-.0547063	-.0057425
mar_stat	.0010489	.0013106	0.80	0.424	-.0015198	.0036176
PEhigh	-.0035678	.0114953	-0.31	0.756	-.0260982	.0189626
PElow	.0289435	.0084061	3.44	0.001	.0124678	.0454192
DBvla	.023665	.0081486	2.90	0.004	.007694	.039636
PLverl	.0011378	.0063506	0.18	0.858	-.0113091	.0135848
PHgood	.0052134	.0037828	1.38	0.168	-.0022007	.0126274
Total	.0399896	.0246252	1.62	0.104	-.0082749	.0882542
Unexplained						
age_10	-.2386644	.2127364	-1.12	0.262	-.6556201	.1782914
sex	.2020976	.0850015	2.38	0.017	.0354977	.3686974
mar_stat	.0240264	.081724	0.29	0.769	-.1361497	.1842024
PEhigh	.1039183	.0613657	1.69	0.090	-.0163563	.224193
PElow	.00425	.0287335	0.15	0.882	-.0520666	.0605665
DBvla	-.0671755	.040983	-1.64	0.101	-.1475006	.0131496
PLverl	2.236161	.4935441	4.53	0.000	1.268832	3.20349
PHgood	-.0704755	.1196328	-0.59	0.556	-.3049514	.1640004
_cons	-1.833535	.5605407	-3.27	0.001	-2.932174	-.734895
Total	.3606031	.064738	5.57	0.000	.2337189	.4874872

Eventually, also the level of contribution to and dependency on social security (in terms of a net positive balance versus a net negative global effect) differs between natives and non-EU immigrants. The level of contribution as well as the level of dependency is lower for non-EU immigrants.

The divergence in the level of contributions between non-EU immigrants and natives within the group of contributors cannot be explained by differences in socio-economic characteristics. Only 3.9 percent points of the total gap of 0.40 is attributable to differences in socio-economic differences between natives and non-EU immigrants. The remaining gap might be due to migrant-specific characteristics, such as discrimination, network effects or language problems. On the contrary, within the individuals who are dependent (net negative transfer) the gap is completely explained by differences in socio-economic characteristics between natives and non-EU immigrants. Most important explanatory factors are age, marital status, region of residence and employment records.

**Table 6: Differences in level of negative contribution, natives and non-EU immigrants (>16y), 2004**

Blinder-Oaxaca decomposition		Number of obs		=		4006	
1: countryb_neu = 1							
2: countryb_neu = 2							
lnfiscalI_ne	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]		
-----							
Differential							
Prediction_1	8.378778	.022317	375.44	0.000	8.335037	8.422518	
Prediction_2	7.963911	.0672998	118.33	0.000	7.832006	8.095816	
Difference	.414867	.0709036	5.85	0.000	.2758986	.5538355	
-----							
Decomposit~n							
Explained	.39698	.0458698	8.65	0.000	.3070768	.4868832	
Unexplained	.0178871	.0655552	0.27	0.785	-.1105988	.1463729	
-----							
Explained							
age_10	.2992835	.0339564	8.81	0.000	.2327301	.3658369	
sex	.0134866	.0090668	1.49	0.137	-.004284	.0312572	
mar_stat	.0462934	.0099511	4.65	0.000	.0267897	.0657971	
PEhigh	.0004074	.0009135	0.45	0.656	-.0013829	.0021978	
PElow	.0016548	.0055794	0.30	0.767	-.0092806	.0125902	
DBvla	-.0347685	.0082653	-4.21	0.000	-.0509682	-.0185689	
PLverl	.0781078	.0157045	4.97	0.000	.0473277	.108888	
PHgood	-.0074851	.0044842	-1.67	0.095	-.0162738	.0013037	
Total	.39698	.0458698	8.65	0.000	.3070768	.4868832	
-----							
Unexplained							
age_10	.4842131	.1382893	3.50	0.000	.213171	.7552551	
sex	-.0022155	.0537984	-0.04	0.967	-.1076583	.1032274	
mar_stat	-.1224777	.0753559	-1.63	0.104	-.2701726	.0252172	
PEhigh	.1177753	.0346003	3.40	0.001	.04996	.1855907	
PElow	.0344305	.0638491	0.54	0.590	-.0907115	.1595724	
DBvla	.0678823	.0441797	1.54	0.124	-.0187082	.1544729	
PLverl	-.1677807	.0821144	-2.04	0.041	-.328722	-.0068394	
PHgood	-.1199632	.0906441	-1.32	0.186	-.2976223	.0576959	
_cons	-.273977	.2311938	-1.19	0.236	-.7271085	.1791544	
Total	.0178871	.0655552	0.27	0.785	-.1105988	.1463729	
-----							

Finally we illustrate the large impact of education on the probability of employment in the probit analysis below. Having a degree of higher education increases the employment probability considerably, whereas low education (i.e. never completed secondary schooling) has a strong negative effect.

Even though education is such an important factor for explaining overall employment probabilities, it has less explanatory power when we look for determinants of the labor market integration gap between natives and non-EU immigrants (see **Table 7**). In a European perspective Belgium has relatively low employment rates. Especially the estimated overall labour market outcomes of immigrants are well below those of the native-born: the difference in employment rates between natives and non-EU immigrants is 0.2504. The Oaxaca decomposition reports the mean values of employment for natives and non-EU immigrants and the difference between them. Less than 20% of this large gap is explained by the socioeconomic variables. The largest factor explaining the disparity in employment is education. Higher shares of persons without secondary education among immigrants account for 0.0424 of the native/non-EU gap in the probability of employment. Thus most of the explained part in the employment gap is attributable to the gap in low education shares.

Table 7: Probability employment, natives and non-EU immigrants (>16y), 2004, BE

Logistic regression		Number of obs =		6280		
Log likelihood = -3559.235		LR chi2(6) =		961.52		
		Prob > chi2 =		0.0000		
		Pseudo R2 =		0.1190		
employed	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
age_10	-.2444901	.0253113	-9.66	0.000	-.2940994	-.1948809
sex	.8929722	.0586685	15.22	0.000	.777984	1.00796
mar_stat	.6974153	.0635234	10.98	0.000	.5729117	.8219189
PEhigh	.987053	.0687144	14.36	0.000	.8523752	1.121731
PElow	-.9852199	.0895792	-11.00	0.000	-1.160792	-.8096479
DBvla	.3319716	.0582504	5.70	0.000	.2178029	.4461404
_cons	.2879107	.0912357	3.16	0.002	.109092	.4667294
Non-linear decomposition by countryb_neu (G)						
		Number of obs =		6898		
		N of obs G=0 =		6280		
		N of obs G=1 =		618		
		Pr(Y!=0 G=0) =		.65652866		
		Pr(Y!=0 G=1) =		.40614887		
		Difference =		.2503798		
		Total explained =		.04889605		
employed	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
age_10	-.0082073	.0008626	-9.51	0.000	-.009898	-.0065166
sex	.0060632	.0006284	9.65	0.000	.0048315	.0072949
mar_stat	-.0119819	.0011818	-10.14	0.000	-.0142981	-.0096657
PEhigh	.001326	.000503	2.64	0.008	.0003402	.0023118
PElow	.044274	.004144	10.68	0.000	.0361518	.0523961
DBvla	.0169376	.0030051	5.64	0.000	.0110477	.0228274

The unexplained part can be attributed to immigrant-specific characteristics. Despite favourable socio-demographic conditions the estimated labour market integration of non-EU citizens ranks last because of a strong negative effect of immigration status. Brücker et al. (2002) call this the residual effect and attribute it to language discrepancies, network effects or discrimination. We need to bear in mind the importance of the unexplained part when interpreting our simulation results in the next section.

## 6. Exploring the borders of alternative immigration policy: simulation results

In the framework of economic immigration criteria, the socio-economic profile of the potential immigrant, and more specifically education and work-related characteristics play an important role. We have briefly discussed the system that is in place in Canada (in section 1), which in the Belgian policy context often is referred to as an example worth following. From this perspective we investigate the effect of changes in the share of parameters relevant for immigration policy, namely education level and labour market experience, and we estimate the shift in net fiscal impact. In this sense it is rather a retrospective simulation: we look at the net contribution of immigrants if their socio-economic characteristics would be different, e.g. due to better integration policies, or other immigration criteria.

### 6.1 Increasing the share of highly educated immigrants

In our first simulation exercise we focus on the education parameter. We want to gain a first insight in the effect of having higher education as an entry criterion for new immigrants. In this stage we look at two scenarios. In the first one (sim1), we align education level of immigrants to that of natives. In the second scenario (sim2) we look at the effect of having only highly educated immigrants in the current stock. How will it impact on the net transfers to social security of immigrants? In the table below we mention the distribution of education level for each simulation.

Table 8: Distribution of education level by country of birth

	BE		EU		non-EU			total
	base	sim1	sim2	base	sim1	sim2	base	
no secondary education	20.3	28.0	20.3	0.0	33.2	20.3	0.0	21.5
secondary education	52.7	47.9	52.7	0.0	38.8	52.7	0.0	51.6
tertiary education	27.0	24.1	27.0	100.0	28.1	27.0	100.0	26.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

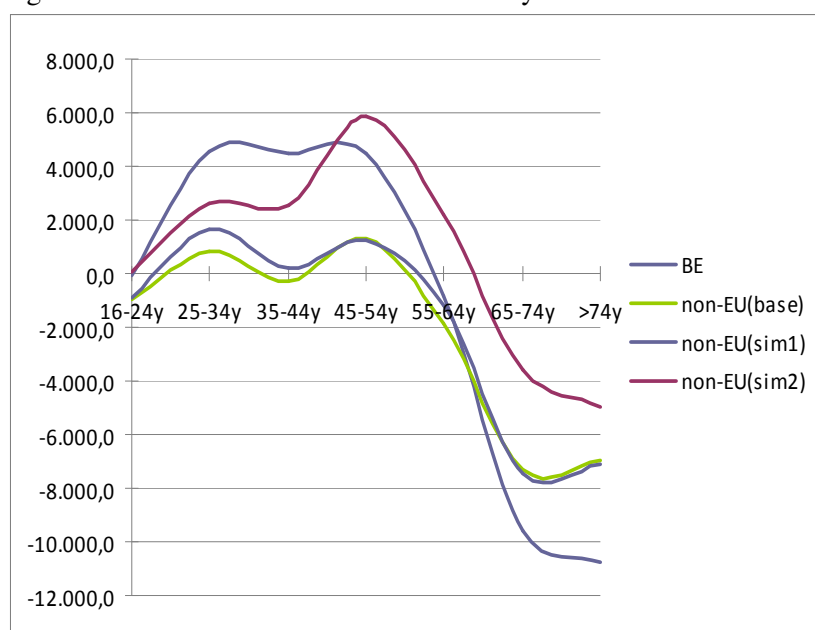
Source: EU-SILC, 2004, BE

Increasing the education level like this can be interpreted as the result of various policies. It can be considered as increased efforts in the education level of current migrants (which is dramatically low), or as the policy to allow only highly educated persons to enter the country.

By having only highly educated immigrants, we simulate a maximum scenario, and results can be considered as a kind of upper limit. Moreover it remains a static exercise: we do not take account of future education levels of children that enter the host country with their immigrating parents.

Raising the education level of non-EU immigrants has a considerable impact on their contribution to the social security system. In **Figure 4** we present the baseline for natives and compare it with the baseline and both simulations for non-EU immigrants.

Figure 4: Simulation of net fiscal transfers by shift of education level



Source: EU-SILC, 2004, BE

Expanding the education level of immigrants to the shares of the native population, one can observe an improved fiscal balance. The net fiscal dependency ratio equals 1, which implies a sustainable situation. Nevertheless, the net transfers remain narrow. Limiting the stock of immigrants to only highly educated individuals results of course in an even better fiscal outcome. All non-EU immigrants at active age now report a positive net transfer for social security.

Nevertheless, none of both simulations alleviates the net average transfers of non-EU immigrants to the extent of those for natives in the age groups less than 45. Only non-EU immigrants older than 45 provide a positive net transfer above the (baseline) level of natives. The main reason for these discrepancies is probably the limited employment (mostly in secondary labor market) and confined incomes, also (and certainly for younger) highly educated non-EU immigrants.

Table 9: Net transfer per person after simulation of education level (baseline for natives), total population (>16y), BE, 2004

	BE	EU			non-EU		
		base	sim1	sim2	base	sim1	sim2
<i>Contribution</i>	3,970	4,160	4,340	7,770	2,720	2,970	4,470
<i>Benefit</i>	3,950	4,000	4,000	5,230	3,130	3,010	2,020
<i>Net fiscal impact</i>	20	160	340	2,540	-410	-40	2,450
<i>Fiscal dependency ratio</i>	0.995	0.962	0.921	0.673	1.152	1.014	0.452

Hence, we concentrate on the effect for individuals at active age only, in order to compensate for the younger age structure of non-EU immigrants by excluding the effect of pensions (Table 10). Again, the impact of the first simulation is positive, but remains limited. In the second simulation, the net fiscal dependency ratio of non-EU immigrants at active age drops below that of natives (without any changes in the distribution of education level). Nevertheless, the difference in fiscal dependency ratio between both groups of this (unrealistic) scenario is small.

Table 10: Net transfer per person after simulation of education level (baseline for natives), active age (16 – 64y), BE, 2004

	BE	EU			non-EU		
		base	sim1	sim2	base	sim1	sim2
<i>Contribution</i>	5,020	5,240	5,470	9,820	2,960	3,230	4,870
<i>Benefit</i>	2,240	2,560	2,570	2,070	2,770	2,630	1,860
<i>Net fiscal impact</i>	2,780	2,680	2,900	7,750	190	600	3,010
<i>Fiscal dependency ratio</i>	0.446	0.488	0.469	0.210	0.936	0.813	0.381

## 6.2 Labor market integration

The current immigration policy is inadequate from an economic point of view. The economic gains would probably be larger if Belgium was able to improve the labor market integration of foreigners.

Table 11: Activity status by country of birth, total population (> 16y), BE, 2004

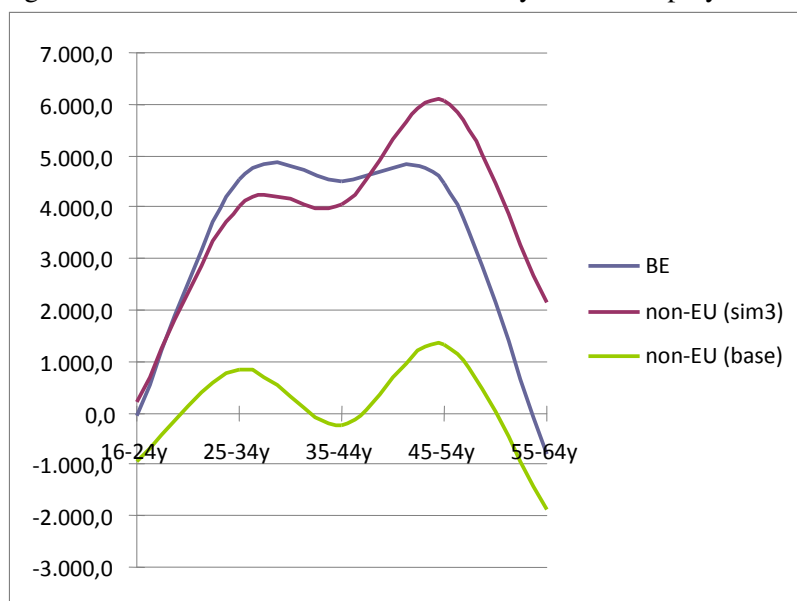
	BE	EU		non-EU		total
		base	sim 3	base	sim 3	base
<i>employed</i>	49.5	45.3	57.2	35.9	48.8	48.3
<i>unemployed</i>	8.2	11.9	0.0	12.9	0.0	8.7
<i>retired</i>	19.8	18.2	18.2	7.5	7.5	18.8
<i>other inactive</i>	22.6	24.6	24.6	43.8	43.8	24.2
<i>Total</i>	100.0	100.0	100.0	100.0	100.0	100.0

In Table 11 we show the employment rates according to age for natives, immigrants from EU countries and immigrants from non EU countries. The differences between the employment

rates of the groups are very large. Moreover the probit results (see table) underline the importance of the employment rate.

To illustrate the importance of employment we compare the net transfer to the public sector for the current situation and for increased employment among immigrants (sim 3). To measure the fiscal impact and the benefits of labour market integration efforts, we simulate full employment of the current not-employed stock of immigrants. The results by age are presented in figure.

Figure 5: Simulation of net fiscal transfers by shift of employment level



Source: EU-SILC, 2004, BE

This shift-share simulation shows the increase in average net transfers for non-EU immigrants in case of increased employment. The assumption of increased employment underlies an immediate assimilation of a similar labor income of the current employed stock.

We compare the fiscal impact of full employment among non-EU immigrants with the baseline for natives. Even with the assumption of stock non-EU immigrants in full employment, the net fiscal transfers are similar to those of the current group natives. For immigrants younger than 35 years, the correction ameliorates the fiscal position, but does not meet the native average. For the group immigrants older than 44, the fiscal impact becomes stronger than those of natives, under the condition of full employment for non-EU immigrants.

Table 12: Net transfer per person after simulation of full employment (baseline for natives), population at active age (16 – 64y), 2004, BE

	<b>BE</b>	<b>EU</b>		<b>non-EU</b>	
		<b>base</b>	<b>sim 3</b>	<b>base</b>	<b>sim 3</b>
<i>Contribution</i>	5,023	5,243	9,009	2,955	5,566
<i>Benefit</i>	2,240	2,559	1,628	2,766	1,683
<i>Net fiscal impact</i>	2,782	2,685	7,381	189	3,883
<i>Fiscal dependency ratio</i>	0.446	0.488	0.181	0.936	0.302

One can observe the much stronger effect of employment in comparison with education. Although only a limited share of non-EU immigrants (12.9%) shifts from position, the net fiscal effect is stronger than the shift towards complete high education (71.9%).

## 7. Conclusion

In this paper we have investigated the interaction between immigration and the welfare state, more specifically social security contributions, in Belgium. Maintaining the sustainability of the welfare state is one of the arguments often heard in the debate on re-introducing economic immigration policies. We have tested two hypotheses relevant for this debate:

1. a) Education and labor market performance are important determinants for the net transfers to social security;  
b) These two variables explain the difference in net transfers between immigrants and natives;
2. Increasing the education level and labor market performance of immigrants will improve the net contributions of immigrants in Belgium.

Hypotheses 1a and 2 have been confirmed in our research, whereas 1b only partially. Education level and labor market performances are indeed important determinants for the net transfer level. However, the differences in net fiscal transfers between immigrants and natives cannot be completely explained by socio-economic characteristics. Obviously, also migrant-specific interactions, which cannot be captured with the available sample data in Belgium, play a significant role.

Increasing the education level and labor market performance of immigrants has a positive effect on the fiscal situation of (non-EU) immigrants. The strongest positive effect is realized with increased employment for immigrants, although the shift (in absolute terms) is limited in distribution of the population. This implicitly indicates the constrained position of highly educated immigrants on the Belgian labor market. Consequently, if Canada-inspired immigration policies would be in place the fiscal situation of immigrants in Belgium would be considerably different. Nevertheless, the relative positive impact of alleviating education level and employment level of immigrants is strongly correlated with the younger age distribution of immigrants. Comparison of fiscal effects between total population and population at active age only indicates little improvement of fiscal dependency ratios of non-EU immigrants.

Until now, our simulation has been fairly rough. We intend to improve this in the future by making a more dynamic simulation at the micro level.

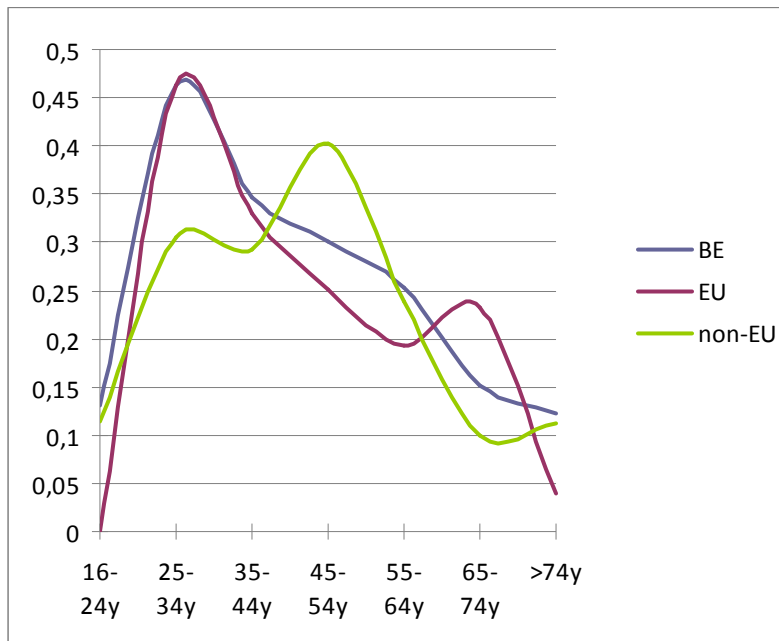
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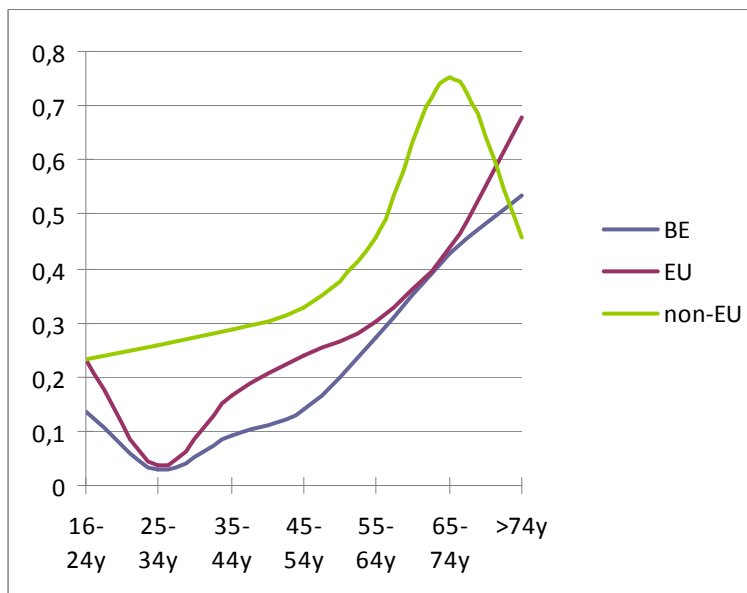
## 9. Annexes

Figure 6: Share of high educated individuals by country of birth



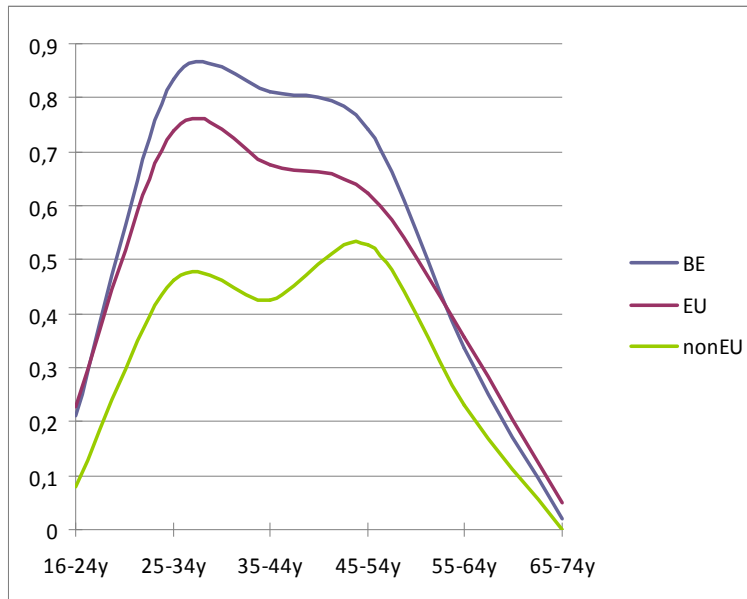
Source: EU-SILC, 2004, BE

Figure 7: Share of low educated individuals by country of birth



Source: EU-SILC, 2004, BE

Figure 8: Employment rate (five-year average) among natives, EU- and non-EU immigrants



Source: EU-SILC, 2004, BE