

# **Immigration and the net transfer to different parts of the public sector\***

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## **Abstract**

Like other Western European countries, Denmark's immigrant population is on the rise. The majority of these immigrants come from non-Western countries and have arrived in Denmark as refugees or as relatives of family members already residing in the country. The non-Western immigrants are not well integrated into the labour market, many are outside the labour force altogether, and unemployment is high among those in the labour force. This lack of integration means that the revenue from taxes paid by immigrants is lower, and the transfers received by the immigrants from the public sector are higher than for natives of the same age. The net transfer to the public sector is negative. However, the effects may differ between different parts of the public sector.

In this study the net transfer for different parts of the public sector in Denmark are shown for 1996 and 2001. The main result of the study is that the effects are most negative for the municipalities, a situation that may contribute to explaining the discussion of immigration on the local political level.

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## **1. Immigration and transfers to and from the public sector**

Individuals are consumers throughout their entire lives, but are only active in production for part of this time. Children are not allowed to take employment, and after a period of employment individuals typically spend a number of years as pensioners. What they produce during their 'active' lives must not only meet the needs of their own consumption in that period, but also cover consumption expenses for people of 'passive' age, i.e. children and the elderly. This is made possible by means of a process of redistribution between the generations. This process takes place mainly in three different ways: via the family (for example, parents who provide for their children), via the market (for example, working individuals who invest in pension insurance) and via the public sector (two examples are publicly financed schools and a pension system funded by tax revenues). Redistribution between the generations via the public sector has come to be ever more important.

The redistribution of resources is carried out not only between generations, but also between individuals of 'active' age. An important form of this type of redistribution is that which takes place between those who are employed and those who are not employed or who hold a job but cannot work due to illness. Resources are also redistributed from people with high incomes to those with low incomes. This is done in part via a tax system in which the amount of tax paid increases along with an increase in income, and in part via the transfer system. On the other hand, individual-oriented public consumption is generally not dependent upon the individual's wage or income, but mainly on other attributes like age, while other types of public consumption and investment are mainly related to the size of the population.

Immigration can influence redistribution via the public sector in different ways. In most societies, immigrants are over-represented among those of active age. This implies that resources are transferred from them to the rest of society, provided that all factors other than age are equal for both groups. On the other hand, in most European countries, employment and wages are lower among non-Western immigrants than among natives, which would suggest a transfer to the immigrants. The matter of the direction in which resources are actually transferred is an empirical question, and the answer varies from country to country and within a given country over time.

The public sector obtains revenues from taxes and contributions and has expenditures for transfer payments and for public consumption and investment. Both revenues and expenditures are influenced by immigration. We will treat these different items in turn.

Immigrants contribute to public sector finances by paying taxes and various special contributions, such as those paid for unemployment insurance and pensions. One problem in relating taxes to individuals and groups is that it is not always clear who actually pays the taxes. It is easy to determine who pays some taxes. Income tax, for example, can be attributed to the person who formally pays the tax. A fairly easy solution can also be found for some other taxes. Value-added tax and selective purchase tax can be allocated in proportion to the consumption of different individuals and households, and payroll taxes can be distributed in proportion to wages. The most difficult taxes to distribute are business taxes (taxes on profits, environment taxes, etc.). The degree of uncertainty surrounding this point, as well as many others, means that the type of calculations in which we are engaged should be interpreted with caution.

Transfer payments intended for specific individuals are easy to distribute. They are simply traced to the individual in question. It is more difficult, however, to find an appropriate principle for the granting of subsidies to businesses (in many cases it might not be appropriate to distribute them on individuals). Each of these transfers must be examined separately to see what the relevant principle of distribution is.

Public sector consumption can be divided into several different parts: 1) a part that is independent on the size of the population (public good), 2) a part where the extent of public sector activity depends upon the size and composition of the population, but where it is not possible to link a particular unit to a particular person, 3) a part that can be viewed as publicly financed private goods, and 4) a part consisting of public sector activities directly connected to immigrants.

The way in which an analysis is carried out should depend upon the questions to be answered. The questions raised in much of the discussion are: ‘What effect does a marginal increase (or a non-marginal increase) in the number of immigrants have on public sector finances?’ and ‘What does the redistribution pattern between natives and immigrants look like in a given year?’ This paper tries to answer the second question.

The public sector consists of several parts and not only the state but also other public authorities as for example municipalities have budgets and are affected by decisions influencing revenues and expenditures. Decisions that influence immigration or immigrants made by one entity may influence the budgets of other public authorities and may influence their opinions and policies regarding immigration and immigrants. There are good reasons to calculate the net transfers for different parts of the public sector. This has been done earlier in

a only few cases. See Smith and Edmonston (1997 and 1998) for the U.S. and Wadensjö and Orrje (2002) for an earlier study of Denmark.

In this paper the public sector in Denmark is divided into four parts: the state sector, the municipalities, the counties, and the unemployment insurance scheme.<sup>1</sup> The calculations are for 1996 and 2001, years for which we have access to detailed distribution of taxes, transfer payments and public consumption and investment on the different subsectors.

## 2. Data<sup>2</sup>

This study of net transfers from immigrants to different parts of the public sector in Denmark is based on data from the Ministry of Finance's Law Model for 1996 and 2001.<sup>3</sup> The database contains detailed information on income, taxes, transfers, and public consumption for 1/30 (3.3 per cent) of the population living in Denmark. There is also information regarding demographic variables including whether a person is an immigrant or has a parent who is, and on employment status.

Data on those aged 18 years and older, with information for the children included as part of the net transfer for their parents, has been used. There is information on demographic variables – age, gender, family type, immigration status (classified by country of birth and country of birth of the parents, and year of arrival) – for net transfers between the individual and the public sector and for the individual employment rate. Information on the country of origin is divided into two categories, Western and non-Western countries.

The major part of the public sector's costs and revenues are distributed across individuals in the Law Model.<sup>4</sup> The direct personal income taxes are ascribed to the individuals who pay them, and the indirect taxes are distributed across individuals in proportion to their disposable incomes.<sup>5</sup> Income transfers are referred to those individuals who receive them. The main part

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<sup>1</sup> In the unemployment insurance part, the following transfer payments are included: Unemployment benefits, leave-benefits for those who take leave and are being replaced by an unemployed person; two forms of early exit compensation upon leaving the labour market; and payments corresponding to the unemployment benefits paid to those taking part in different labour market programmes. On the tax side, two forms of fees are included.

<sup>2</sup> See Wadensjö & Orrje (2002) for a detailed presentation of the data used.

<sup>3</sup> See Hansen, Nicolaisen, Dehlbæk & Schnor (1991), Ministry of Economic Affairs (2000) and Ministry of Finance (2003) for presentations of the database. The Law Model was earlier administrated by the Ministry of Economic Affairs. Knudsen, Larsen & Pedersen (1998) and Linderoth (1999) give detailed presentations of the structure of the public sector and of the tax system in Denmark.

<sup>4</sup> See Ministry of Economic Affairs (1997) pp. 188-200 for a presentation of how the different items are assigned to individuals.

<sup>5</sup> We have not taken into account the fact that the part of the income saved may vary between groups including variation between immigrants and natives.

of public consumption is either distributed according to information on actual use (for example school, health care and old age care) or evenly divided over the population. Public investment (for example road investments) is also evenly distributed across the whole population (both native Danes and immigrants). The public sector costs, which are not distributed across individuals and therefore not included in the Law Model, are such costs that are assumed to be independent of the size of the population. Some examples are central state administration, defence, and some subsidies to the private sector (especially agriculture).<sup>6</sup> The variable net transfer to the public sector is calculated for each individual as the difference between the taxes ascribed to the individual and the sum of income transfers and public consumption and investment ascribed to the same individual.

The Law Model contains observations of almost 140,000 people aged 18 or over for every year. The large sample means that quite a few immigrants are included in the database – more than 3,000 from Western countries and more than 5,000 from non-Western countries including second generation immigrants in 1996 (with both parents born outside of Denmark) and more than 3,200 from Western countries and more than 6,800 from non-Western countries including second generation immigrants in 2001.

The employment rate is a variable used in the analysis. An individual's employment rate varies between 0 and 100 per cent. In order to be counted as having an employment rate of 100 per cent, a person should have worked full-time during the entire year. There are some problems regarding the definition of full-time. The working hours are calculated by using contributions to the ATP pension scheme. A person who has 27 or more working hours a week has to pay a full contribution and is counted as working full-time in the Law Model.<sup>7</sup> A person who works at least 18 hours, but less than 27 hours, pays two-thirds of the full contribution and is counted as having an employment rate of two-thirds (of course given that the person works throughout the entire year). Those who work at least nine hours but less than 18 hours pay one-third of the full contribution and are counted as working one-third of full-time. Those working less than nine hours a week on a regular basis do not pay any ATP contribution and are not counted as employed. Those who are self-employed, and the wives or husbands who work in their family businesses are counted as having an employment rate of 100 per cent if the income is the same or higher than the maximal benefit level in the

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<sup>6</sup> See le Maire & Scheuer (2001) for a detailed presentation of what is and what is not distributed on individuals in the 1998 Law Model.

<sup>7</sup> The ATP contribution is also paid if a person is unemployed or on sick leave, but such periods are not included in the calculation of the employment rate.

unemployment insurance. If the income for the self-employed is below that level and non-negative, the employment rate is proportionally reduced. For the self-employed with a negative income from that activity the employment rate is set at zero. For those who are part-time self-employed and part-time in someone else's employ, the two employment rates are added, but the employment rate is never set higher than 100.

### **3. Net transfer and different parts of the public sector**

There are three main subsectors of the public sector in Denmark: the state, the counties and the municipalities. The unemployment insurance scheme etc. is part of the state sector but we found it interesting to separately study the net transfers to the subsector that is focused on giving support to the unemployed. In addition to costs for unemployment allowances, the unemployment insurance scheme also encompasses the compensation that is given for certain, specific law-sanctioned reasons for taking time off from the labour market and for some forms of early exit, and compensation for labour market education. The revenues that go to this sector are from specific fees. We will therefore present result for four sectors.

There is a specific problem when it comes to the distribution of net transfers between municipalities and counties since two municipalities – Copenhagen and Frederiksberg – do not belong to a county. These two municipalities are responsible themselves for those activities that are usually assigned to the counties (e.g. the costs for hospitals). Here the costs for these municipalities are totally assigned to the municipalities, even the costs that in other parts of the country are assigned to the counties.

The undistributed part consists of some public transfer payments and some parts of the public consumption that can be distributed per individual but not per part of the public sector – we do not know which part of the public sector is responsible for the costs. The undistributed transfer payments are mainly occupational pensions for people who have been employed in different parts of the public sector. It is not possible to see which part of the public sector they have been employed in.<sup>8</sup> Besides that, it is doubtful whether these costs should be counted as transfer payments. In a way they are postponed wages and it would have been more correct to reckon them as costs for earlier public consumption and investment and include them in the calculations for those years. On the other hand, we should include the costs for pension obligations that were accrued during the year with the costs of the public sector of that year –

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<sup>8</sup> Ministry of Economic Affairs (2000).

but we lack the necessary information to do so. To some extent, the undistributed costs for public consumption are costs for labour market training and some public investments, for example investments in infrastructure.

Table 1 shows the net transfer divided over the four subsectors. We see that there is on average a large positive net transfer to the state sector. This net transfer does not mean that the state has a budget surplus of the same size. Some costs for the state are not included in the calculations since they are public goods such as defence, foreign affairs etc. These costs are covered by the state. There is also a deficit in the unemployment insurance scheme that the state covers. As mentioned, there are also some costs that have not been distributed on sectors even though they are distributed on individuals. With better information, these costs would most probably have been assigned mainly to the state sector. When comparing the size of the net transfer for the various groups we see that it is positive for all groups although much smaller for immigrants from non-Western countries than from other countries. In Table 2 we compare non-Western immigrants who different length of residence in Denmark. The variation in length of stay is large in 1996 but much smaller in 2001. This may reflect the changes in the state support system to the municipalities introduced in 1999.

The net transfer to the municipalities is positive in both 1996 and 2001 for all the population and for the natives. The amounts are rather small, larger in 2001 than in 1996. However, the redistribution from the municipalities to the immigrants from non-Western countries is rather large. The municipalities stand for the main part of the total redistribution to the immigrants from non-Western countries. The net transfers have declined between 1996 and 2001, but are still large in 2001. This is even the case for the immigrants who have lived in Denmark for 10 years or more. See Table 2. The information about the net transfers from the municipalities is a measure of the net costs of the municipalities taken as a group. There is redistribution between the municipalities not taken into account when calculating the individual amounts. For a municipality this redistribution may reduce the costs of the net transfer to the non-Western immigrants as some of the factors determining the redistribution are correlated with the number of immigrants in the municipality. We will return later to this form of redistribution between municipalities.

Table 1. Net transfers (in Danish *kroner*) per person 18 years and over to different parts of the public sector in 1996 and 2001

Group	State		Counties		Municipalities		Unemployment insurance		Not distributed	
	1996	2001	1996	2001	1996	2001	1996	2001	1996	2001
Danish population (excluding those who have one immigrant parent)	30,400	30,600	100	4,200	2,700	5,500	-4,500	1,600	-10,200	-6,800
Danish population (including those who have one immigrant parent)	30,500	30,600	100	4,200	2,700	5,500	-4,400	1,700	-10,200	-6,100
Second generation – one Danish parent and one immigrant parent from a Western country	36,300	34,300	-1,400	5,300	2,400	6,400	-1,000	7,500	-6,600	-1,400
Second generation – one Danish parent and one immigrant parent from a non-Western country	23,400	22,100	-3,600	0	3,000	4,500	-3,800	4,300	-6,600	-1,300
Immigrants from Western countries	28,400	41,400	-300	3,800	-1,000	6,800	-5,500	800	-9,300	-3,700
Immigrants from non-Western countries	1,800	800	-5,600	-1,300	-34,100	-30,600	-17,300	-7,300	-8,400	-2,800
<b>Total</b>	<b>29,400</b>	<b>29,400</b>	<b>-200</b>	<b>3,900</b>	<b>1,300</b>	<b>3,800</b>	<b>-4,900</b>	<b>1,200</b>	<b>-10,100</b>	<b>-5,900</b>

Note: Western countries are EU countries, Norway, Switzerland, Iceland, North America, Australia and New Zealand; non-Western countries are all other countries.

There is a net transfer from the unemployment insurance scheme to all groups in 1996. It is considerably higher to the non-Western immigrants than to other groups. In 2001, a year with lower unemployment than in 1996, the net transfer goes in the other direction. There is a net transfer to the unemployment insurance system for all groups except immigrants from non-Western countries. For this group the net transfer is still going in the direction from the unemployment insurance system. The amounts are larger for those who have lived in Denmark for a longer period of time than for those who have lived in the country for a shorter time (see Table 2). This can seem paradoxical since the rate of employment is higher for those who have lived in Denmark for a longer time. The explanation can be found in the fact that immigrants who have been in the country for a shorter length of time are not entitled to unemployment benefits.<sup>9</sup> For an unemployed person to be entitled to unemployment benefits he/she must have been employed for at least 52 weeks during the previous three years before the occasion of unemployment. While those who have lived in the country for a longer time period pay more in fees to the unemployment insurance scheme as they earn more, the amounts they receive are even larger as they are more often eligible for unemployment compensation.

<sup>9</sup> The share of those in the labour force who are insured is smaller among immigrants than among Danes. See Arbejdsministeriet (2000). The reasons for this are partly the age composition, partly differences in the degree of labour market attachment. To be included in the unemployment insurance scheme a certain degree of labour market establishment is needed.



In the case of the counties, the net transfers are small for most groups. They are positive for the native population and negative for the immigrants from non-Western countries. The net transfer to the counties from the native population has increased between 1996 and 2001 and the net transfer to the non-Western immigrants has declined in the same period. When comparing individuals with different lengths of stay we find that the transfers are smaller to those who have lived in Denmark longer. The explanation is not that the costs vary, but that the taxes paid vary, which in turn depends on differences in income.

Table 2. Net transfer (in Danish *kroner*) to different parts of the public sector per person 18 years and over from immigrants from non-Western countries according to length of stay in Denmark in 1996 and 2001

Length of stay*	State		Counties		Municipalities		Unemployment insurance		Not distributed	
	1996	2001	1996	2001	1996	2001	1996	2001	1996	2001
Less than one year	-19,800	-8,400	-7,500	-2,900	-26,900	-23,600	0	1,800	-6,700	-1,000
1–3 years	-25,700	-5,600	-10,200	-3,300	-44,400	-36,800	-1,400	1,000	-8,200	-2,200
3–5 years	-9,900	-8,500	-6,300	-2,400	-47,200	-41,100	-7,600	-3,900	-8,300	-2,900
5–7 years	-7,500	-8,700	-7,300	-1,100	-46,100	-38,100	-14,300	-3,800	-8,500	-2,700
7–10 years	800	-4,100	-5,900	-2,200	-45,300	-50,000	-23,400	-8,200	-8,300	-2,900
10 years or more	18,700	8,600	-2,900	-500	-25,800	-26,600	-28,700	-12,200	-9,100	-3,300
Second generation	6,500	2,600	-5,400	800	200	3,700	-5,400	-3,900	-6,700	-2,100
Total	1,800	800	-5,400	-1,200	-34,100	-30,600	-17,300	-7,300	-8,400	-2,800

\*The division according to length of stay is based on exact age. 'Less than one year' in the column for the year 1996 includes those who immigrated on 1 January 1996 or later, '1–3 years' includes those who immigrated between 1 January 1994 and 31 December 1995, etc.

#### 4. The state

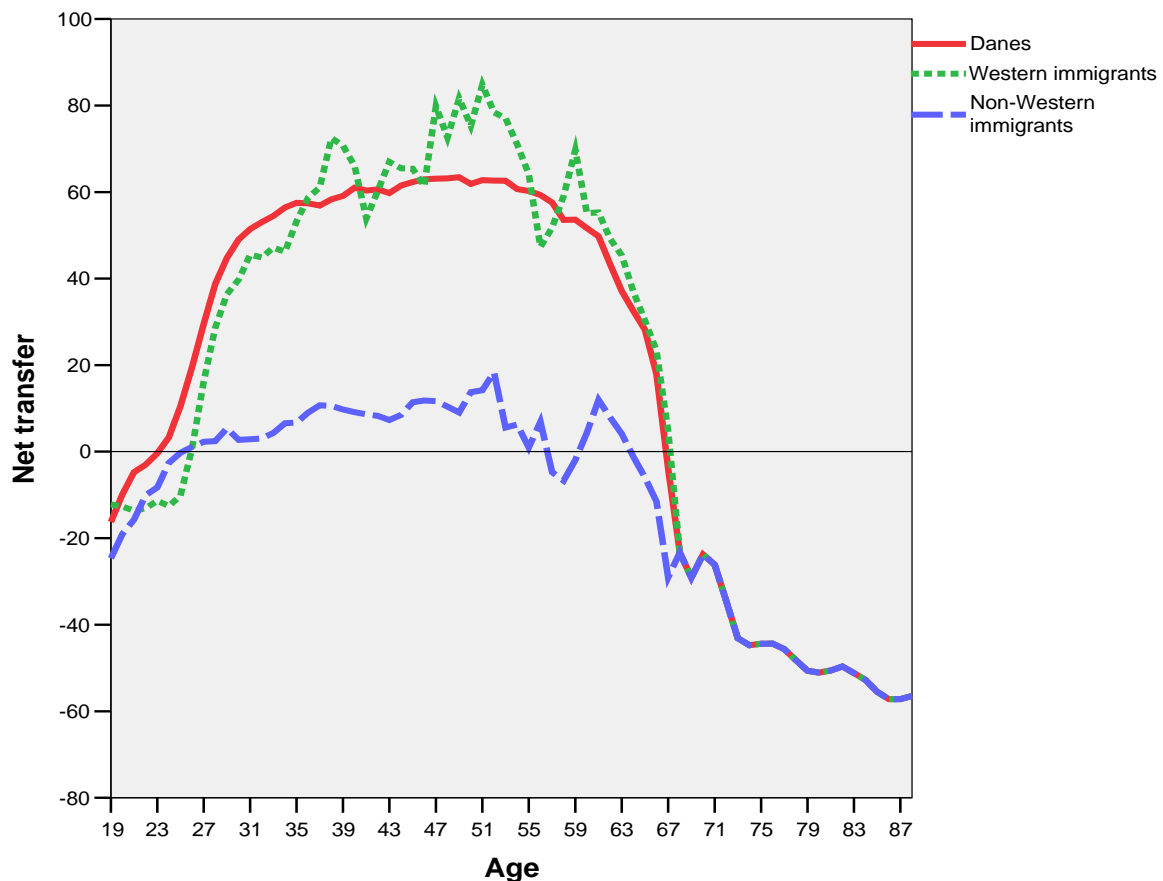
We will now further examine the redistribution by age and will start with the state sector, see Figure 1. In the figures we only show the results for 2001.<sup>10</sup> There is a net transfer from Danes and Western immigrants to the state sector until the age of retirement. The figure shows that the redistribution to the state sector is somewhat higher from Danes than from Western immigrants of active age. Contrarily, the redistribution to the state sector from non-Western immigrants is very small among those of active age. The considerably lower net transfer from non-Western immigrants can be explained by the housing and social allowances

<sup>10</sup> In Wadensjö and Orrje (2002) we show the corresponding figures for year 1996.

that the state sector pays<sup>11</sup> and by differences between the groups when it comes to state taxes.

In regards to the elderly, the redistribution goes *from* the state sector to all groups. Pension payments make up a substantial part. There are few elderly people in the two immigrant groups (few in the upper active age among non-Western immigrants and even fewer over the age of retirement in both groups). Because there are few observations, average values for all irrespective of origin have been used in the figure.

Figure 1. Net transfer to the state sector in 2001 (three-year average) in thousand Danish kroner



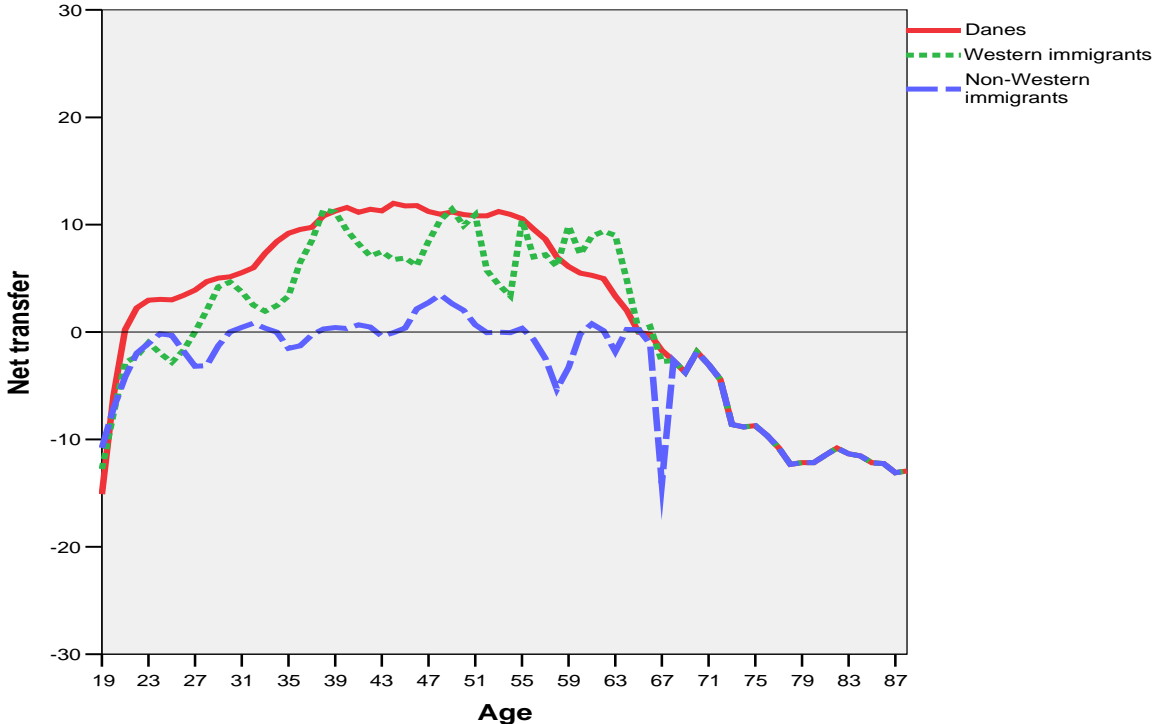
## 5. The counties

Hospitals and upper secondary schools constitute the main expenditures of the counties – expenditures that are normally financed by an income tax. The pattern for the counties is easy to describe. A net transfer to the counties takes place from those Danes and Western

<sup>11</sup> The municipalities are responsible for housing and social allowances but the state shares the costs. This has been accounted for in the calculations.

immigrants who have reached the age where the majority enter the labour market and are below the age of retirement. To some extent there is a transfer from the counties to those who are 18 to 25/30 years of age, and considerably larger transfers to those who are over the age of retirement. This is explained by higher costs for medical care and lower tax payments. There is a net transfer from the counties to the immigrants from non-Western countries in most age groups. There are few elderly people in the two immigrant groups and average values for all irrespective of origin have been used.

Figure 2. Net transfer to the counties in 2001 (three-year average) in thousand Danish *kroner*



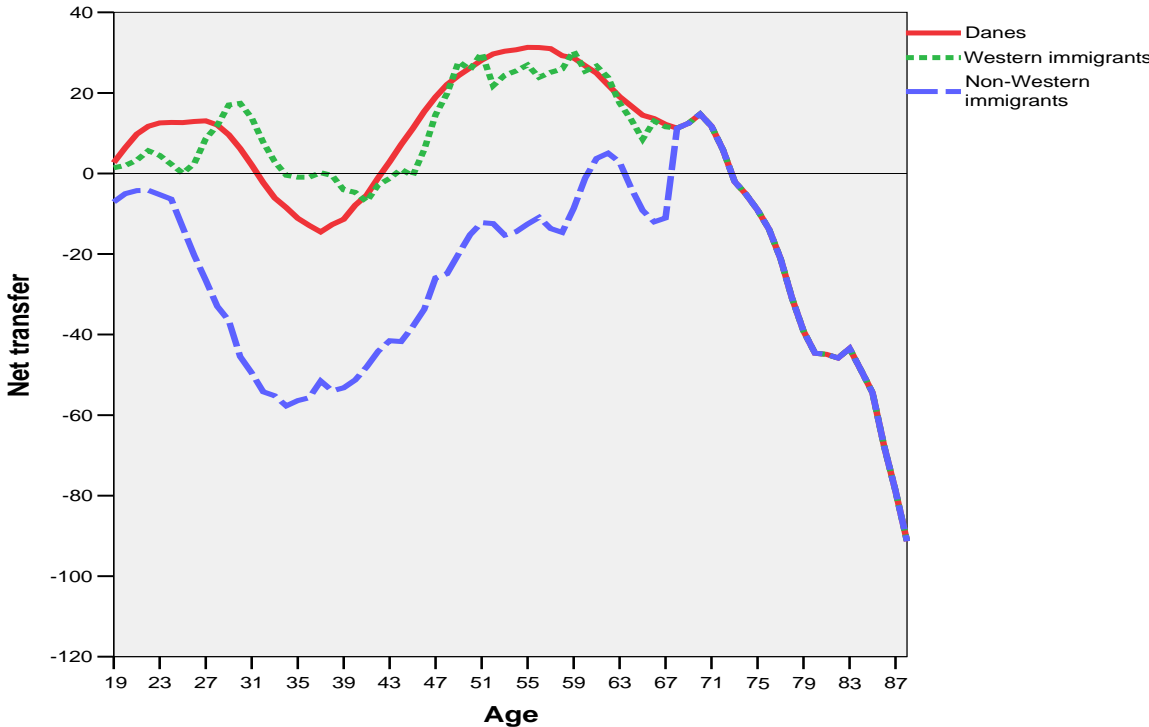
**6. The municipalities**

The next step is to examine the corresponding figure for the municipalities. We will first look at the pattern for Danes and Western immigrants. The figure indicates that the transfers to the municipalities take place in two age categories. The transfers to the municipalities take place until the age of 30 (the age before most people have children) and between the ages of 45 and 70 (between the time when the children start leaving home and the age when the costs for old age care start showing and tax payments are lowered because of retirement). The net transfers to those who are oldest are very high, which is due to costs for old age care. There are few

elderly people in the two immigrant groups and average values for all irrespective of origin have been used.

The pattern for non-Western immigrants is the same, but irrespective of age there is a transfer *to* this immigrant group. The extent of the net transfers still varies by age in the same way as for the other two groups, but on a considerably lower level. There are several contributing factors that make the net transfers from the municipalities to the non-Western immigrants very extensive. With a low employment rate and low income they pay less in municipal taxes. With many children, costs for childcare and schools become high. The low employment rate also leads to many of those who are without work receiving social and housing allowances instead of benefits from the unemployment insurance scheme.<sup>12</sup>

Figure 3. Net transfer to the municipalities in 2001 (three-year average) in thousand Danish kroner



That the municipalities in the calculations here show a great deficit does not mean that municipalities with many non-Western immigrants have to take responsibility for the whole deficit or even for any part of it. There is a system for redistribution between the municipalities that compensates the costs for those municipalities that have many non-

<sup>12</sup> See Arbejdsministeriet (2000).

Western immigrant inhabitants. There is also a state support system but support from that is included in the estimates. The two systems have varied over time.<sup>13</sup>

Considerable changes concerning the administration and financing of the integration policy have taken place since 1999. This affects the distribution of costs between the parts of the public sector and, above all, the responsibility for various activities. Until 1999, on behalf of the state, *Dansk Flygtningehjælp* (the Danish Refugee Assistance) managed the integration of the refugees during the first 18 months after they received their residence permit. However, the municipalities were permitted to take over the responsibility under certain conditions. Since 1 January 1999, the municipalities have been responsible for immigrants and refugees who are encompassed by the law on integration (all immigrants except those from the Nordic countries, EU countries and EES countries).<sup>14</sup> The municipalities also took over the responsibility for teaching the Danish language to those who are not encompassed by the law on integration, but are entitled to it by the “Law of Danish language teaching”.<sup>15</sup>

The system that has been in use since 1999 consists of three parts: 1) A system that adjusts differences between municipalities with different tax power (45 per cent of the difference), 2) a system that adjusts for differences between municipalities with different levels of costs (where the share of non-Western immigrants is one factor in calculating the costs) and 3) a specific contribution to municipalities with the lowest tax power. Since a greater share of non-Western immigrants leads to a lower tax power in the municipality and to higher expenses on average, the redistribution system aids in lowering the municipality’s costs for non-Western immigrants moving in.

For 2001 we have estimated if the net transfer from the public sector per immigrant is higher in municipalities that have a high share of immigrants from non-Western countries among the population than in those with few immigrants. The net transfer per immigrant is according to that estimation slightly lower in municipalities with a high proportion of immigrants among the population, i.e. not in the expected direction, but the coefficient is not significantly different from zero. The conclusion is that the costs vary proportionally with number of non-Western immigrants.

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<sup>13</sup> See Indenrigsministeriet (1999).

<sup>14</sup> See Law No. 474 of 1st. July 1998 on the integration of foreigners in Denmark (‘Integrationslov’).

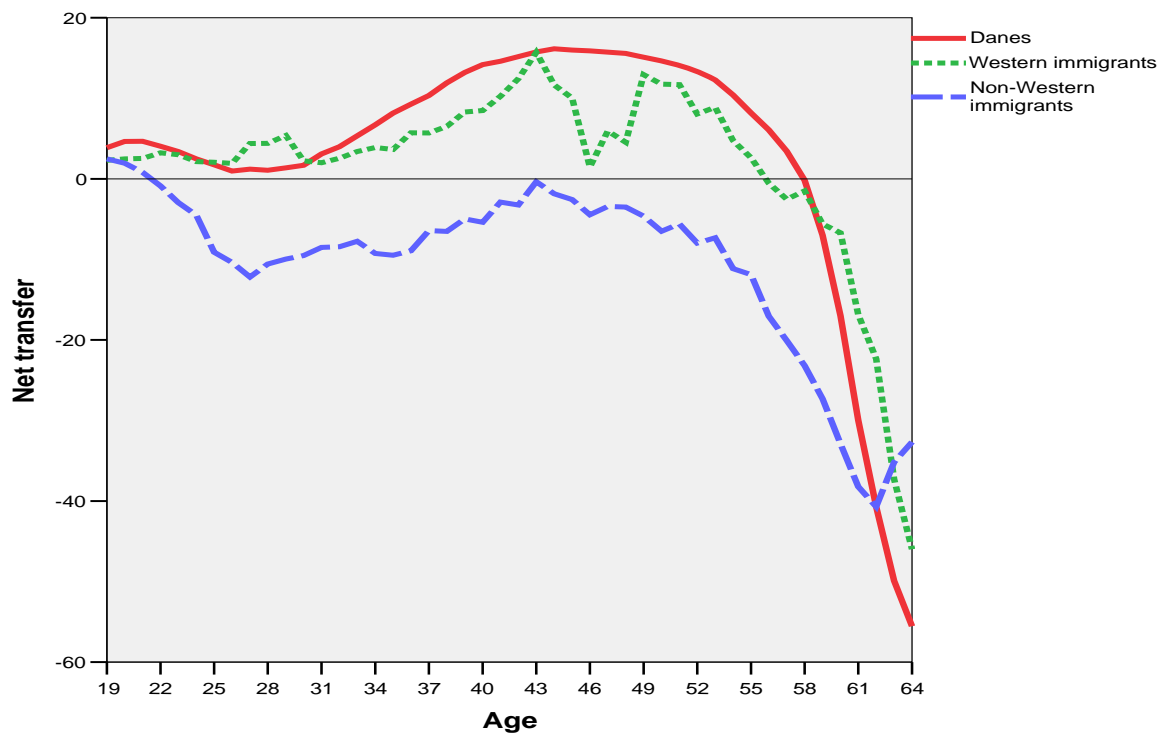
<sup>15</sup> See Law No. 487 of 1st. July 1998 on the teaching of Danish as a second language to adult foreigners; language centres, etc.

## 7. The unemployment insurance system

The fourth part of the public sector is the unemployment insurance scheme with related programmes. We have chosen to limit the figure to the 18-65 age group (with a three-year moving average it means that the lowest age is 19 and the highest 64 years). Retired individuals do not pay any fees and no compensation is given. There is a clear pattern for the Danish group; the net transfers to the unemployment insurance scheme are small for the youngest – they pay fees if they are employed but are often not entitled to compensation when they are unemployed. From 20 years of age until 35 there is a net transfer from the insurance scheme. This age group has relatively high unemployment and the unemployed usually receive compensation. From 35 to about 55 years of age the fees that are paid are larger than the compensation from the insurance scheme. The unemployment rate is rather low for this age group and the fees they pay are relatively high since their incomes are high. There is a remarkable deficit for those over 55, which to some extent reflects long-term unemployment among older people but above all the fact that many of them receive early exit compensation (*efterløn*).

The age pattern of the net transfers for immigrants from Western countries is the same as for the Danes, but at a lower level. A net transfer to Western immigrants takes place in almost all age groups. We find the same kind of age variations for non-Western immigrants, but the net transfers to this group are considerably larger.

Figure 4. Net transfer to the unemployment insurance scheme in 2001 (three-year average) in thousand Danish *kroner*



## **8. A regression analysis of the factors that influence the net transfers to the municipalities**

In the preceding part we have studied the differences between Danes, Western immigrants and non-Western immigrants according to age in the four sectors in 2001. By using regression analysis we will now study the factors that influence the net transfer to the municipalities in 1996 and 2001 in more detail.

Table 3 shows regression estimates which, in addition to demographic variables, include the employment rate among the explanatory variables. We see that the employment rate affects the net transfer. These effects are not hard to understand, the income transfer payments are larger when people are unemployed and the taxes paid are lower. The coefficient is higher in 2001 than in 1996.

If we look at the variables that represent different groups of origin we see that they are rather small in most cases – the inclusion of the other variables eliminates most of the differences we saw in Table 1 and Figure 3. The exception is the values of the coefficient for non-Western immigrants. Even if it is reduced compared to the numbers shown in Table 1, it is still about half that amount. Redistribution to non-Western immigrants takes place via the municipalities also given family status and employment rate. This may be due to that wages are lower for immigrants leading to lower tax payments, but if we include earnings instead of employment rate the values of the coefficient are more or less the same. See Table 4.

One part of the explanation to the large remaining effect may be that our classification of family status is too crude. Instead of the four categories, we have therefore tried to use a family classification scheme with 20 categories (the possible combinations of gender, married/not married, and 0, 1, 2, 3, 4- children). The absolute value of the coefficient for the non-Western group declines, but not very much. An alternative explanation may be that the municipalities have special costs in connection with immigrants (Danish language courses, interpreters). In that case the costs should be higher especially during the first years of residence in Denmark. To study this, we have re-estimated the equation with the inclusion of variables for the length of stay in Denmark. We find that the coefficient is lower (in absolute value) for those who arrived ten years ago or earlier, and consequently higher for those who arrived later (except those who arrived the same year and have only been in Denmark part of the year). But only part of the difference is explained in that way.



Table 3. Regression estimates (OLS) with net transfers to the municipalities in 1996 and 2001 (in thousand Danish *kroner*) as the dependent variable; and age, gender, family status, country of origin and employment rate as independent variables

Variables	1996		2001	
Constant	72.489***	(2.172)	104.118***	(3.498)
<i>Born in Denmark</i>				
Both parents born in Denmark	0			
One parent born in Denmark, one in a Western country	2.586*	(1.153)	4.945***	(1.683)
One parent born in Denmark, one in a non-Western country	2.143	(2.418)	3.567	(3.256)
Both parents born in a Western country	-0.196	(2.773)	4.683	(4.135)
Both parents born in a non-Western country	-3.248	(2.980)	3.698	(3.369)
<i>Born outside Denmark</i>				
Born in a Western country	0.714	(0.836)	7.309***	(1.264)
Born in a non-Western country	-19.310***	(0.655)	-15.853***	(0.896)
Female	-7.559***	(0.241)	-13.909***	(0.371)
Age	-6.395***	(0.154)	-8.912***	(0.245)
Age <sup>2</sup>	0.160***	(0.003)	0.214***	(0.005)
Age <sup>3</sup>	-0.0012***	(0.00002)	-0.0015***	(0.00003)
<i>Family status</i>				
Unmarried, no children	0		0	
Unmarried with children	-78.518***	(0.753)	-87.253***	(1.147)
Married, no children	4.503***	(0.299)	7.839***	(0.462)
Married with children	-31.608***	(0.360)	-37.852***	(0.557)
Employment rate	0.343***	(0.003)	0.483***	(0.005)
Number of observations	138 719		139 657	
R <sup>2</sup> (adj)	0.298		0.224	

Notes. Standard errors in parentheses. Individuals 18 years and older are included. Married stands for living together irrespective of whether a couple is formally married or not. The employment rate varies between 0 and 100.

In Table 4 the corresponding estimates with the earnings variable included are shown instead of that representing the individual employment rate. More of the variation is explained if the earnings variable is included instead of the employment rate. The coefficients for the earnings variable are positive (and significant). It is higher in 2001 than in 1996. The coefficients for the other variables are similar to that in the employment rate equations shown in Table 3. The main differences are that the absolute value of the gender effect is smaller in all four equations and that the coefficient for the non-Western group is much smaller.

Table 4. Regression estimates (OLS) with net transfers to the municipalities in 1996 (in thousand Danish *kroner*) as the dependent variable; and age, gender, family status, country of origin and earnings as independent variables

Variables	1996		2001	
Constant	87.536***	(2.120)	120.068***	(3.359)
<i>Born in Denmark</i>				
Both parents born in Denmark	0			
One parent born in Denmark, one in a Western country	0.373	(1.124)	2.505	(1.630)
One parent born in Denmark, one in a non-Western country	0.379	(2.358)	2.507	(3.154)
Both parents born in a Western country	-1.669	(2.705)	1.122	(4.007)
Both parents born in a non-Western country	-3.689	(2.906)	2.205	(3.264)
<i>Born outside Denmark</i>				
Born in a Western country	-0.139	(0.815)	3.161***	(1.224)
Born in a non-Western country	-19.910***	(0.633)	-15.788***	(0.859)
Female	-5.152***	(0.237)	-9.862***	(0.362)
Age	-7.136***	(0.149)	-9.614***	(0.232)
Age <sup>2</sup>	0.171***	(0.003)	0.225***	(0.005)
Age <sup>3</sup>	-0.0012 ***	(0.00002)	-0.0016***	(0.00003)
<i>Family status</i>				
Unmarried, no children	0			
Unmarried with children	-78.623***	(0.734)	-87.665***	(1.111)
Married, no children	5.090***	(0.291)	8.616***	(0.446)
Married with children	-31.943***	(0.351)	-39.114***	(0.539)
Earnings	0.135***	(0.001)	0.157***	(0.001)
Number of observations	138 719		139 657	
R <sup>2</sup> (adj)	0.332		0.272	

Notes. Standard errors in parentheses. Individuals 18 years and older are included. Married stands for living together irrespective of whether a couple is formally married or not.

We have also studied if the effects of the employment and earnings variables differ between the groups by making separate estimates for the different groups – Danes, Western immigrants, and non-Western immigrants and for different parts of the public sector in 2001. See Table 5. For all three groups (and also for all independent of ethnicity) we have also done separate estimations of the equations for men and for women. In general the pattern is the same for the three ethnic groups and for men and women. There are some differences, however, that are of interest to note. The coefficients for the employment and earnings variables are higher for the non-Western group than for the other two groups. This indicates that the municipalities have much to gain by improving the employment situation for that group. The estimations also indicate that the effects are even larger for the state sector especially if the unemployment insurance system is included. It means that high employment

and earnings among immigrants will greatly contribute to the finances of both the municipalities and the state sector.

Table 5. Estimates of effects of employment and earnings for various groups and parts of the public sector in 2001

<i>Group, variable</i>	State		Counties		Municipalities		Unemployment insurance	
<i>All, men and women</i>								
Employment	1.012	(0.007)	0.198	(0.004)	0.483	(0.005)	0.563	(0.003)
Earnings	0.367	(0.002)	0.066	(0.001)	0.157	(0.001)	0.122	(0.001)
<i>All, men</i>								
Employment	1.101	(0.010)	0.226	(0.005)	0.506	(0.006)	0.572	(0.004)
Earnings	0.372	(0.002)	0.065	(0.001)	0.148	(0.001)	0.102	(0.001)
<i>All, women</i>								
Employment	0.912	(0.011)	0.162	(0.005)	0.455	(0.008)	0.549	(0.004)
Earnings	0.350	(0.003)	0.061	(0.002)	0.181	(0.003)	0.173	(0.001)
<i>Danes, men and women</i>								
Employment	1.023	(0.008)	0.202	(0.004)	0.461	(0.005)	0.581	(0.003)
Earnings	0.351	(0.002)	0.072	(0.001)	0.166	(0.001)	0.133	(0.001)
<i>Danes, men</i>								
Employment	1.122	(0.010)	0.232	(0.005)	0.484	(0.007)	0.586	(0.004)
Earnings	0.349	(0.002)	0.073	(0.001)	0.160	(0.001)	0.114	(0.001)
<i>Danes, women</i>								
Employment	0.916	(0.011)	0.164	(0.006)	0.432	(0.008)	0.571	(0.004)
Earnings	0.351	(0.004)	0.062	(0.002)	0.177	(0.003)	0.176	(0.001)
<i>Western, men and women</i>								
Employment	0.793	(0.103)	0.178	(0.025)	0.550	(0.042)	0.477	(0.016)
Earnings	0.509	(0.009)	0.016	(0.003)	0.054	(0.005)	0.030	(0.002)
<i>Western, men</i>								
Employment	0.550	(0.160)	0.177	(0.023)	0.524	(0.039)	0.507	(0.021)
Earnings	0.529	(0.005)	0.014	(0.002)	0.046	(0.004)	0.022	(0.002)
<i>Western, women</i>								
Employment	1.000	(0.133)	0.160	(0.044)	0.570	(0.076)	0.441	(0.023)
Earnings	0.293	(0.042)	0.038	(0.014)	0.154	(0.023)	0.135	(0.007)
<i>Non-Western, men and women</i>								
Employment	0.927	(0.015)	0.145	(0.008)	0.730	(0.016)	0.352	(0.011)
Earnings	0.358	(0.005)	0.055	(0.003)	0.256	(0.006)	0.125	(0.004)
<i>Non-Western, men</i>								
Employment	1.016	(0.025)	0.155	(0.012)	0.732	(0.022)	0.429	(0.015)
Earnings	0.356	(0.007)	0.052	(0.004)	0.236	(0.007)	0.130	(0.005)
<i>Non-Western, women</i>								
Employment	0.817	(0.016)	0.132	(0.012)	0.729	(0.025)	0.261	(0.016)
Earnings	0.357	(0.006)	0.060	(0.005)	0.292	(0.010)	0.114	(0.007)

Notes. Standard errors in parentheses. Individuals 18 years and older are included but for the unemployment insurance estimation only those aged 18-65 years. The explanatory variables are the same as those in the estimates shown in Tables 3 and 4.

## 9. Conclusions

When it comes to redistribution to and from immigrants, this study gives some clear results for different parts of the public sector in Denmark. The redistribution to non-Western immigrants takes place above all from the municipalities and from the unemployment insurance scheme. For those who have lived in the country for a shorter time the transfers by way of the unemployment insurance scheme are still small and the transfers go instead from the state sector (integration subsidies, social allowances, housing allowances).

There is considerable redistribution between the municipalities, meaning that municipalities with many immigrant inhabitants are not singly responsible for net transfers to the immigrants, but rather that these transfers are borne to a large extent by all municipalities. However, it is likely that the municipalities with the most immigrants bear a good deal of the costs themselves, especially some years after an immigrant's arrival in Denmark. This can give municipalities economic incentives to try to redirect immigrants to other municipalities.

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