

Schmidt, C.M., A. Stilz. and K.F. Zimmermann (1992): 'Mass Migration, Unions and Government intervention,' CEPR Discussion Paper, No. 727, forthcoming: *Journal of Public Economics*.

Schmidt, C.M. and K.F. Zimmermann (1992): 'Migration Pressure in Germany: Past and Future,' in K.F. Zimmermann (ed.): *Migration and Economic Development*: New York springer, 201-230.

Sehgal, E. (1985): 'Foreign Born in the US Labour Market: The Results of a Special Survey,' *Monthly Labour Review*, 108, 8-24.

Simon, J.L. (1989): *The Economic Consequences of Immigration*. Cambridge: Basil Blackwell.

Straubhaar, T. and K.F. Zimmermann (1993): 'Towards a European Migration Policy,' *Population Research and Policy Review*, 12, 225-241.

Ulrich, R. (1993): 'The Impact of Foreigners on Public Households in Germany,' mimeo., Berlin.

Winkelmann, R. and K.F. Zimmermann (1993): 'Ageing, Migration and Labour Mobility,' in P. Johnson and K.F. Zimmermann (eds.): *Labour Markets in an Ageing Europe*, Cambridge University Press, 255-283.

Zimmermann, K.F. (1992): 'European Migration Policy,' *International Economic Insights*, 2, 7-10.

Chapter 4

The Impact of Foreigners on the Public Purse¹

Ralf Ulrich

1. Introduction

Most West European countries have experienced high immigration and growing ratios of foreign-born residents among their populations in the last decades. Opinion polls and a growing record of violent attacks against foreigners indicate increasing hostility and resentment against foreign-born residents (see for Germany: Wiegand, 1992). There are various reasons for the resistance to accept immigrants. Resentment against foreigners is sometimes rational, sometimes purely irrational.

The negative assessment of immigration is especially fuelled by widespread fears that immigrants adversely affect the economic welfare of the indigenous population. Potential redistribution by way of public finances is an important subject in the public debate on immigration policy. In some European countries, transfers from the welfare state constitute a relevant share of GDP. The relevance of the redistribution argument is also reflected in opinion polls. In a representative inquiry in 1982, German

citizens were asked about their perceptions of foreigners. When asked 'Is it true that foreigners with many children often come to Germany only because of the high subsidies for children?' 76% answered 'Yes'. (Wiegand, 1984, p.13) There are few scientific inquiries trying to verify these perceptions.

This chapter deals with the direct impact of immigration on public revenues and expenditure in Germany. Firstly, previous approaches to this problem are examined. Secondly, methodological aspects of the question are discussed. Thirdly, micro-data from the German Socio-economic Panel (SOEP) are used to make an estimate for 1984 and to identify important determinants. It is shown how the demographic and economic characteristics of immigrants determine their effect on public finances. Immigrants' features are specific in different host countries and they may change over time. In a final section, the impact of foreigners on Germany's public purse is analysed in a dynamic view, using available macro-data. The paper comes to the conclusion that labour migrants have been, and are still an asset for the public purse in Germany. However, this might change in the future if certain trends continue.

2. Previous studies of the subject

Several studies on the impact of immigrants on the public purse are available for the US. In a recent article, Rothman and Espenshade review 17 articles on this subject. (Rothman/Espenshade, 1992)

An influential contribution has for instance been made by Julian Simon (1977). He used micro-data from the 1976 Survey of Income and Education (SIE) to estimate tax payments and the use of social services for natives and immigrants in the US. He looked at the household level, since some transfer payments are addressed to the household rather than the individual. Simon included all natives in one group. He divided the immigrants into several groups according to the year of their arrival in the US and excluded those families from the analysis who immigrated before 1950, because they '... must now be seen as part of an ongoing system' (Simon, 1984, p. 59). However, these families made up about half of all immigrant families. If they entered the US before 1950 it is obvious that they represent mainly the older age groups among the immigrants. Simon hence compares one group of natives representing *all* age groups with

several groups of immigrants together representing only the younger proportion of immigrants.

Data on important transfer payments was included in the SIE sample, as well as income data. Simon roughly estimated the tax payments of various groups by multiplying their income with a 'mean' tax rate of 29%. The effects of progressive taxation are therefore excluded. According to the SIE data, the income of immigrants grew with the length of their stay in the US.

Immigrants who had been in the US longer than four years and less than 25 had a higher income than the native average. The cohorts that Simon excluded from the analysis had an average income below the average of natives. This is not surprising, since a significant proportion of native families were of pensionable age. [According to Simon's results, the use of transfer payments by immigrants grows with the length of their stay in the US. The highest transfer payments were received by families who came to the US before 1950.]

Julian Simon's analysis concludes that immigrants contribute more to the public purse than they take from it. However, this result is only valid for the younger half of the immigrants that came to the US after 1950. This result was effectively determined by the question Simon asked. If he considered on the immigrant side only the younger half of the population while including the older half on the native side (with their lower tax payments and higher use of transfer payments) no calculations were necessary to predict the result. This could be avoided by controlling for age.

Francine Blau (1984) used the same data set as Simon to compare transfer payments of immigrants and natives in the US. Blau differentiates between welfare payments and social insurance payments. The first are financed by tax payments, the second by fees. These two categories are also different in terms of eligibility requirements. Blau calculates the average use of transfer payments for all immigrants. In this analysis the average transfers received by immigrant households are found to be higher than those received by native households. Immigrant households with a male head received 50% more transfer payments than native households with a male head. In the case of households headed by females the difference is not that large, but comparable.

Blau indicates that these differences were mainly determined by differences in the age structure of immigrants and natives. Within the same age groups, immigrants received *less* transfer payments than natives. Blau explains the high proportion of older immigrants by reference to the restrictive immigration policy of the United States during the 1920s.

The analysis by Ather Akbari (1989) for Canada is in line with Simon's method. Akbari uses data from the 1981 census. He shows that the income and the corresponding tax payments of immigrants grow with the duration of their stay in Canada. The average tax payments of all immigrants are higher than those of natives. On the other hand, on average immigrants use more transfer payments than natives. The net balance of both factors, tax and transfer payments, is slightly positive. This means that immigrants in Canada pay more in taxes than they receive in transfer payments.

Although Germany has a substantial foreign population of about six million, few studies of their impact on the public purse are available. Miegel (1984) and Wehrmann (1989) analysed this subject by use of macro-data and indirect estimates. They came to the result that, today, foreigners take more from the public treasury than they give. But in some areas their conclusions are too shortcut. They used the difference in unemployment rates between natives and foreigners to draw direct conclusions about reliance on unemployment benefits. A later section of this chapter shows that this is not justified.

Gieseck/Heilemann/von Loeffelholz (1993) deal with the subject in a broader study on economic consequences of immigration to Germany. They used macro-data to make some rough estimates of additional tax revenues and expenditure due to immigration. Their main result is that foreigners have a positive impact on the public purse. In their calculations they implicitly assumed that foreigners have the same average income, labour force participation and unemployment rate as Germans. This is obviously not the case. The impact of immigrants due to their specific position in the German labour market is therefore excluded.

3. Method of Analysis

The approach suggested in the following section is based on the above mentioned studies. Obviously the analysis of macro-data has to be supported by the use of micro-data. This will allow a deeper insight into the differences between natives and foreigners with regard to tax payments

and fees on one hand and the use of transfer payments and the consumption of publicly financed goods on the other. Studies for the US and elsewhere have shown the advantages of this approach. This has not been done so far for Germany. Ideally, we would like to have a set of micro-data available for a longer time period to see things in development. The German Socio-Economic Panel seems to be such a data set. As will be shown later, this does not apply to a significant comparison over time for this specific question. Therefore the SOEP data are used for a detailed analysis for one year only. This analysis will identify major determinants like age structure, labour force participation, unemployment rate etc., and their impact. Once the impact of these factors has been shown with micro-data, it is easier to make indirect estimates for a period of time based on macro-data.

Several problems in methodology and data availability have to be discussed in advance.

An important determinant of the impact of immigration are legal regulations on the immigrants' entitlement to welfare transfers, on their contributions to the social security system and on their tax payments. Concerning these regulations there are three groups of immigrants in Germany.

- Asylum seekers*: A legal decision on their application can take years. In the past, asylum seekers' access to the German labour market has been delayed for several years. Since July 1991, however, asylum seekers have been able to enter the labour market without any delay. In practice their labour force participation rate is very low. They are entitled to certain social welfare benefits, which are the basic source of their subsistence. Applicants for political asylum are clearly a burden on the public purse, since they generally do not pay taxes or fees.
- Labour migrants*: They currently constitute a foreign population of more than five million people. Foreign workers are generally entitled to most of the social services which are available for Germans. On the other hand, they pay taxes and social security fees like German citizens. The impact of this large group on public finances can only be evaluated by empirical estimates. The following part of this paper mainly concentrates on this group.

□ *Ethnic Germans from Eastern Europe (Aussiedler)*: They are German citizens and have the same rights and obligations as German 'natives' after their arrival. This group is supported in their economic integration by substantial transfers: Gieseck/Heilemann/von Loeffelholz estimate 6 billion DM in 1992 for the *Aussiedler* who migrated between 1988 to 1992 (1993, p. 37). *Aussiedler* are statistically almost invisible a few months after their arrival. Today they are not covered as a 'stock' by official statistics, only as a 'flow' when they arrive. There are very few micro-data sets available on *Aussiedler*. That is why the impact of this group of immigrants could not be included in this paper.

Direct and indirect effects have to be distinguished when evaluating the impact of immigrants on the public purse. There are many indirect effects resulting from the impact on overall economic growth, the dynamics of wages and profits in the given tax system, etc. There may be scale effects for certain areas of the public sector. Some government expenditure is strongly linked to the size of the population and is therefore elastic to immigration. Other categories of expenditure are independent from the size of population, like defence expenditure, science, external relations, development aid etc. For these services there is no dilution effect. These items amount to one third of the central government budget in Germany. Once immigrants pay taxes, these services become cheaper for the natives. Several other ways may be identified in which immigration indirectly influences the public purse. But some of these indirect effects are very speculative and it is nearly impossible to estimate how far they reach. This paper concentrates on the direct impact of foreigners on the public purse in Germany.

For most of the indirect effects, the actual number of immigrants is relevant. For the direct effects it is more the quality of immigrants, their age structure, labour force participation, unemployment rate, income level, etc. If immigrants were totally like the natives, their direct impact on public expenditure and revenue would be minor.

The demographic and economic structure of immigrants is specific to each host country. It is influenced by push and pull factors that determine the migration stream and by its temporary or permanent character. Migrants are not the 'average' citizen of their countries of origin. The push and pull factors result in a selection and self-selection of migrants. So we

should not expect the same effects of immigration in all countries or at any time in history.

An important aspect is the time scale for an evaluation. Usually the balance of the public purse is seen as the outcome of revenue and expenditure, i.e. in terms of flows.² The view on current flows is relevant for all areas where contributions and use or entitlement to services fall into the same period, like health insurance and unemployment insurance. This is different with the pension insurance system. Here entitlements are accumulated during one period, while paying contributions. Services are received decades later, after reaching pensionable age. This has to be considered when comparing current contributions and payments. In all cases except the pension insurance system, this paper concentrates on current flows. In relation to the pension system, projections for the foreign population have been made to estimate the future development of their age structure.

Finally, how can we compare tax payments and fees on one hand with benefits and consumption of publicly financed goods on the other? Ideally we would like to have a complete account of both sides. But this is not possible and we should not expect both sides to be balanced. First, not all taxes paid are direct taxes. Indirect taxes and their income elasticity should be considered. On the other hand the public purse is also financed by sources other than households. This is true for corporate tax etc., but also for the employers' contribution to social security fees. On the consumption side, monetary transfers cover only a part. The use of publicly financed goods like infrastructure etc. by natives and immigrants might be different, but we will hardly ever know something concrete about it. Even in the case of health insurance, there are no data available on the actual costs per person or per household. These things are not covered by macro or micro-data sets. For some areas indirect estimates are possible. Given these limitations, the study has to concentrate on the relation between fees F and received transfers T for Germans G and foreigners F , where data are available. Differences between these relations for both groups in the parts of the social security system :

$$\frac{T_F}{F_F} \neq \frac{T_G}{F_G}$$

will indicate a potential redistribution. Beside that we can compare tax payments. On a few areas of public expenditure, like subsidies for children

and social welfare payments, German official statistics differentiate between German and foreign recipients. Here we can directly compare the consumption by both groups.

4. An Estimate with SOEP Micro-Data

The Socio-Economic Panel is a longitudinal sample survey conducted annually in Germany. It contains representative micro-data on persons, families and households. The panel started in 1984, questioning about 6,000 households with more than 12,000 persons. Immigrants from the main 'guest'-worker nationalities (Turkish, Greek, Italian, Yugoslav and Spanish) were over-represented in the panel, with a total of 1,415 households in 1984. The intention was to allow conclusions not only for foreign workers as a group but also for the main nationalities themselves. Foreigners with other nationalities such as American, Austrian or Polish were included in the 'Germans' group. There are no representative data for these nationalities in the panel.

Ideally, we would like to compute results for all eight years covered by the SOEP so far. This would allow conclusions about some changes in this period. Most panels have the problem of panel mortality: during the years the number of continuing respondents is declining. There are some estimation techniques available to control for this problem. But the number of cases should always be large enough to get significant results. Unfortunately this is not so in our case.

Tax payments are made only by a fraction of households, for example not by most students or pensioners. So, the number of valid cases is much smaller here than the total number of respondents. For some transfer payments (like unemployment benefits) the absolute number of cases is even lower. For the first year, a test of One-way variance had shown that averages for the native and foreigner subgroups were significantly different. Unfortunately, this has been proved to be not given for the following years. The number of responding households in some categories became very small in the years after 1984. For the later years the average for some categories of transfer payments would have to be calculated on the base of only a few dozen households. One-way calculations showed that the averages for natives and foreigners were not significantly different. The standard deviation within the subgroups was higher than within the entire dataset. Calculations for the later years of SOEP would not lead to serious

results for the different types of transfers. Therefore this analysis had to be limited to the year 1984 with the maximum number of respondents. The results have been successfully tested for significance.

The questions of the panel cover a wide area: composition of households, labour force participation, occupational structure and mobility, income, education, health, use of disposable time, etc. Questions on different sources of income and different transfer payments received were included. There was a good coverage for some kinds of transfer payments, while for other types there was a rather high incidence of missing, or 'Not available' answers. The explicit responses to questions on tax payments have been shown to be partly inconsistent. Many respondents could not recall properly their tax payments made one year ago. This was a reason to develop micro-simulation models to calculate consistent synthetic data.

A group of researchers at the *Sonderforschungsbereich 3* at Frankfurt University constructed a micro-simulation model for the SOEP data (Berntsen, 1989). This model calculates income tax payments for each respondent according to his income by applying the German tax regulations. Tax reductions due to the number of children, married status etc. are considered in this way. Some of the data gaps on transfer payments are filled by the model, considering factors on the eligibility of respondents for certain payments. The synthetic data of the SOEP micro-simulation model for 1984 has been used in this analysis to estimate tax payments, contributions to the social security system and the transfer payments of Germans and foreigners.³

Additionally, estimates for the value added tax (VAT) paid by households have been calculated for this analysis. These calculations are based on Helmut Kaiser's estimates of households' VAT payments, depending on their income (Kaiser, 1989). According to Kaiser, VAT as a proportion of household income declines with increasing household income. A household with 1,000 to 1,500, DM monthly income (after income tax) pays a VAT equivalent to 6.6% of its income. A household with a monthly income between 7,500, and 10,000, DM pays 4.9% VAT etc. Kaiser's twelve income groups with the corresponding value added 'tax rates' were applied to calculate the respective VAT paid by each individual household in the sample.

For a few households important information was not available. They had to be excluded to keep the sample consistent. The micro-data esti-

mates for this analysis are calculated on a sample of 5,269 households with 10,310 adult persons. German and foreign households were grouped according to the head of the household.

Table 1 gives an overview of the main results of the micro-data calculations on household level.⁴

The results of the calculations show that foreign households paid lower taxes in 1984 than German households, but higher contributions to social security insurance.

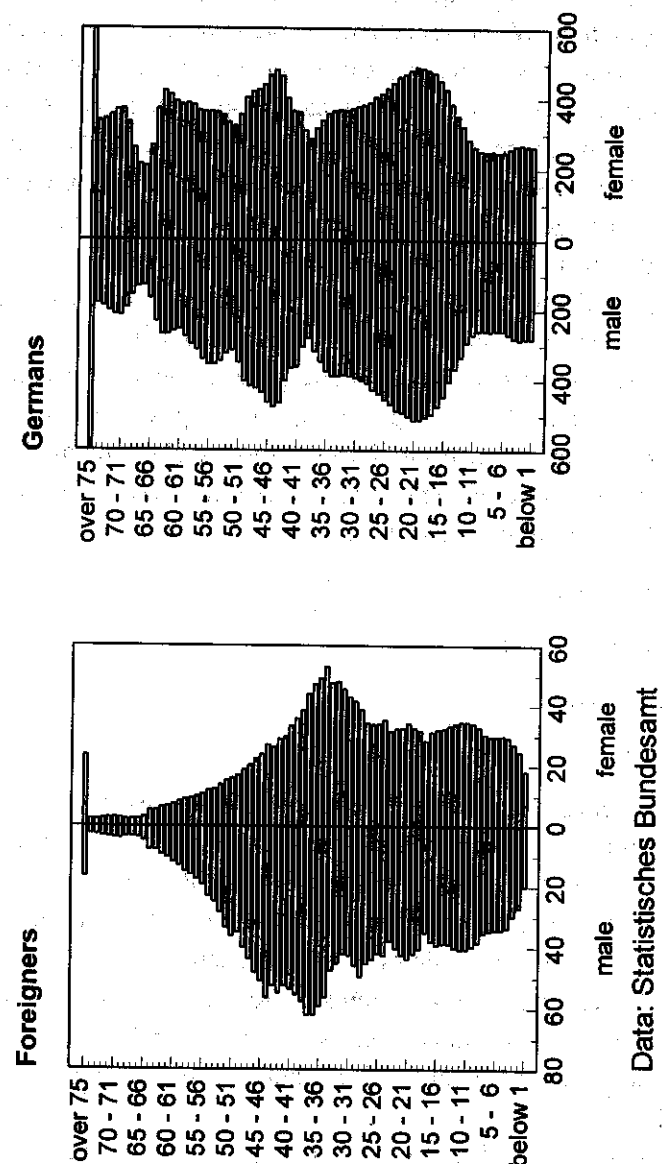
Table 1:
Contributions to Social Security Insurance, Tax Payments and Transfers, DM per Average Household, 1984

	Germans	Foreigners
Social security contributions	4,249	6,550
Unemployment insurance	560	874
Health insurance	1,435	2,159
Pension insurance	2,254	3,517
Tax payments:	8,050	7,129
Income tax	6,033	5,266
Value added tax	2,018	1,863
Selected transfers received:	7,475	3,683
Unemployment benefits	463	1,140
Pensions	5,917	365
Children allowances *	390	1,143
Social security benefits *	705	1,035

Calculations with SOEP data, except * data from *Statistisches Bundesamt*

According to these data, the German average household paid 6,033 DM income tax and 2,018 DM value added tax in 1984. The average foreign household paid 5,266 DM income tax and 1,863 DM value added tax in the same year. Since we know that foreigners have on average lower incomes than Germans, we are not surprised that their average tax payments are lower; they reach 89% of Germans' tax payments. The differences are greater for the progressive income tax than for degressive VAT.

Figure 1: Age Structure 1984



As will be shown later, these differences are even greater if fully employed Germans are compared with fully employed foreigners. This is partly compensated by the fact that part-time workers and persons not economically active constitute a greater part of the German than of the foreign population. We presume that the age structure of foreigners also has a favourable effect. Figure 1 shows the age structure of the foreign and German population in 1984. As can be seen, there is a substantial difference in the share of people older than 65 among Germans and foreigners. Since the data for foreigners older than 75 were not available for single year age groups, this group is shown as one bar. In case of Germans this group goes beyond the limits of the chart.

In order to estimate the isolated effect of the difference in age and employment structure another set of calculations has been done. This time, transfers were calculated on the personal level. By calculating average transfers for five-year age groups it was possible to standardise foreigners' transfer payments to the age structure of Germans. The same has been done with employment status. Average payments have been calculated for the following groups:

- fully employed
- part time employed
- unemployed
- not gainfully employed.

Again the average transfers for foreigners have been calculated assuming the same structure of employment status as Germans. Table 2 shows the main results. The contributions of foreigners to the social security system would have been substantially lower in 1984 if they had the age structure of Germans. This effect would have been even stronger if the employment structure of Germans had been applied. Actually there are two relevant aspects inherent in the employment structure of foreigners: their labour force participation was slightly higher but their unemployment rate was also higher.

These calculations confirm for Germany the results of other research on the important effect of age and employment structures of immigrants for the host country. It is mainly their juvenile age structure and their higher labour force participation that makes them an asset for the public purse.

Table 2:
Transfer Payments in DM per Person, 1984

	Germans	Foreigners	standardized	Employment
		unstandard.	Age Structure	Structure
Contributions to the social security system				
Unemploym.				
Insurance	298	444	339	317
Health				
Insurance	765	1,096	858	786
Pension				
Insurance	1,201	1,786	1,365	1,276
Received Transfer Payments				
Unemployment				
Benefits	248	584	456	445
Pensions	3,203	185	1,181	271
Income Tax				
Payments	3,195	2,679	2,027	1,914

Calculations with SOEP data

These factors overcompensate the lower average income of foreigners up to now. Since it was not possible to include all kinds of transfers this picture is far from complete. But the transfers included in this analysis constitute a major part of all transfers.

5. Major Components and Determinants: a dynamic perspective

In the following section of this paper the three main parts of social security insurance and two categories of tax-financed social services are discussed on the basis of macro-data.

As already mentioned, macro-data allow only indirect estimates. In the social security system, the net balance for each subgroup (natives/immigrants) depends obviously on the following factors:

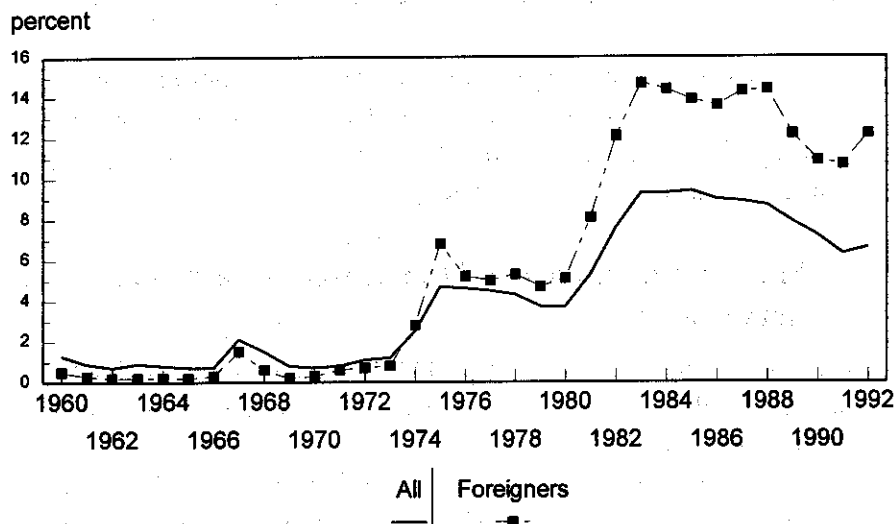
- the share of households paying fees, or taxes, or receiving benefits compared with all households in the subgroup, for example the share of foreign households receiving child allowances among all foreign households. In other words: the average probability to pay fees or to receive benefits among Germans and foreigners.
- the average amount of fees or benefits per paying (or receiving) household.

The average risk to pay fees or to receive benefits is determined by different factors in the parts of the social security system respectively, as is the average amount of fees or payments.

5.1. Unemployment Insurance

Unemployment insurance payments are strictly proportional to the contributions paid by each individual. Thus, the average amount of payments per recipient and the average amount of contributions can cause no difference between natives and immigrants. If there are differences between Germans and foreigners they should result from the probability of receiving unemployment benefits.

Figure 2: Unemployment rate for all employees and for foreigners



Data: Bundesanstalt für Arbeit

Figure 2 shows the unemployment rate for all employees and for foreigners in Germany between 1960 and 1992. Until 1973 the unemployment rate of foreigners was always below the unemployment rate of Germans. Later on, the unemployment rate was permanently higher among foreigners than among Germans. There are several reasons for this.

A first reason is the reaction of foreign labour to unemployment after the modification in official German policy toward foreign workers in 1973. Prior to 1973, foreign workers often went back to their home countries when unemployed and returned when the situation in the labour market had improved. After the so-called recruitment stop, this became risky for foreign workers from non-EEC countries. Once back in their country of origin, they could not rely on being able to return to Germany, even if the labour market were to recover. Under these conditions, the share of unemployed foreign workers who returned home remained much lower than before 1973. The proportion of unemployed foreign workers registered in Germany went up.

The higher unemployment of foreigners in the last two decades, however, also has more substantial reasons. Usually immigrants cannot fully transfer their human capital with migration. Beside the language barrier there are incompatibilities in professional profiles etc. The average level of general education and professional education of foreigners in Germany is below the native level.

In the 'fifties and 'sixties there was a good matching between the educational and professional profiles of the 'guest' workers and the needs of the German labour market for unqualified labour. Foreign employees in Germany are traditionally concentrated in certain branches. But these branches have been most heavily affected by recession and structural change (Dietz 1987, Bach 1987). The sectoral change in the German economy favours branches in the tertiary sector requiring a higher educational level. In aggregate, more jobs have been created in the tertiary sector than lost in the primary and secondary sectors. But this is not true for foreign workers. 519,000 foreigners employed in manufacturing and another 137,000 foreign workers employed in construction lost their jobs between 1974 and 1991. But in the tertiary sector only 124 thousand foreigners could find a new job. While the overall number of employees increased in this period by 2.2 million, the number of foreign employees decreased by 489,000. In other words, the increased unemployment of

foreigners reflects their gradual displacement from the German labour market.

The boom induced by German unification has only temporarily modified the picture. Foreigners' unemployment rate decreased from 12.2% in 1989 to 10.9% in 1990, but reached 12.2% again in 1992. The absolute number of registered unemployed foreigners climbed by 22.2% from 1991 to 1992.

The higher unemployment among foreigners after 1973 suggests that the share they receive from unemployment insurance is larger than that of the Germans. This has been concluded by Mieg (1984) and Wehrmann (1989). But it is not necessarily true, since the risk of unemployment is not identical with the probability of receiving unemployment benefits. Employees are entitled to receive unemployment benefits only after a certain period of contribution payments before unemployment, usually one year. For Germans this is only relevant at the beginning of their professional career. Because of the high fluctuation of foreign workers, however, the proportion of people paying contributions but still not being entitled to receive benefits if they become unemployed is large. In practice the share of unemployed who do not receive benefits is much higher among foreigners than among Germans. In 1984 it was 28% of unemployed Germans, but 37% of unemployed foreigners (Bach, 1987, p. 171).

It is obvious that, until 1973, foreign workers paid more contributions to unemployment insurance than they took benefits from it, because their unemployment rate was lower than that of the Germans'. The SOEP micro-data showed that for 1984, foreigners took more from unemployment insurance than they paid in contributions. Evidence on the changed position of foreigners on the German labour market and their high unemployment suggests that this relation remains.

5.2. Public Health Insurance

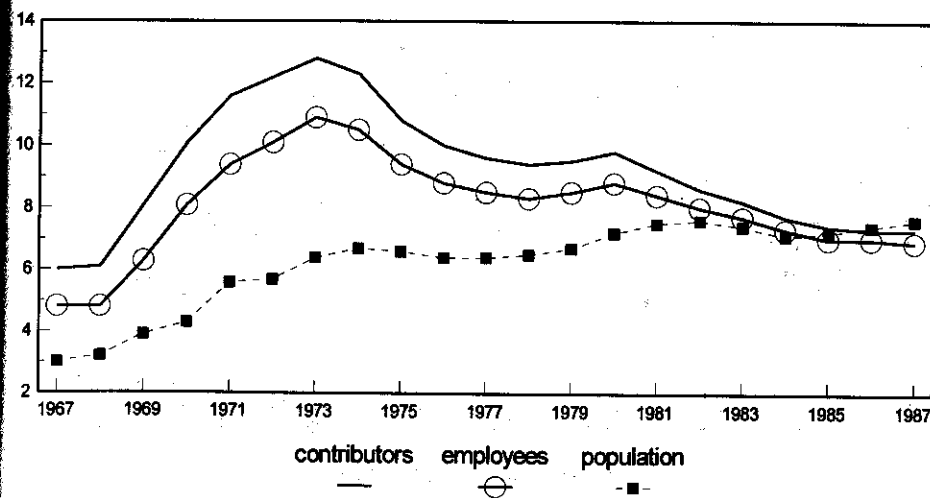
Health insurance is different from unemployment insurance because it also covers people who do not pay contributions: members of the family of the contributor. The benefits in case of illness are independent of the amount of contributions paid in the past. In Germany this is called the 'solidarity principle' of public health insurance. The potential factors that could determine a difference between Germans and foreigners are: the relation between the number of contributors and eligible persons, the

average amount of contributions, the share of ill people and the average costs. For none of these factors are direct macro data available.

In the 'sixties, many foreign workers came to Germany without their families. The foreign population had a specific age and sex structure, with a high share of single persons. We can thus assume that there were fewer family members entitled to health insurance benefits without paying contributions themselves. Figure 3 shows the share of foreigners in the population, among employees and among the contributors to public health insurance. Even at the end of the 'sixties, the share of foreigners among contributors was more than double their share in the population, i.e. among potential receivers. During the seventies, when more and more foreign workers brought their families to Germany, these figures approached one another.

The second factor on the contributions side is the average amount of income, which determines the size of contributions. Data from SOEP and from several other sources (for example Rehfeld, 1991) show that the average income of foreigners in Germany is lower than that of Germans. Section 4 estimated above average contributions to health insurance per household. This includes both effects: the number of contributors in the population and their average income. In 1984, German households paid

Figure 3: Share of foreigners of total population, of employees and of persons paying contributions to health insurance



Data: Wehrmann, 1989; Stat. Bundesamt

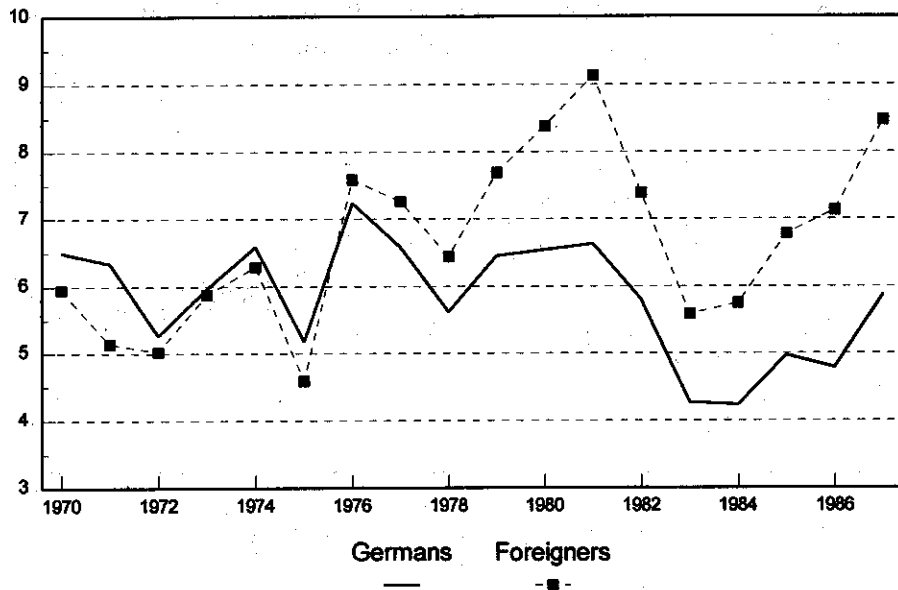
1626 DM, while foreign households paid 2337 DM. This difference is basically due to the higher share of older people among Germans, who do not pay health insurance contributions any more or much less.

If foreigners pay more contributions than Germans, what about their use of services?

Figure 4 shows the share of health insured employees who are unfit for work. Until the mid 'seventies this figure was lower among foreigners; later it became increasingly unfavourable for them. There is a controversy about the reasons for this development (Land, 1984). However, Wehrmann (1989) concluded from these figures that foreigners receive more services from health insurance than Germans. But this depends not only on the share of ill people, but also on the cost of the respective medical treatments.

For Germany, Camphausen (1983) has shown that the costs of medical treatment are highly age-dependent. If older people get ill, their treatment is on average much more expensive than in the case of younger people. Since the foreign population in Germany is much younger than the German one, this should have an effect on the receipt of health services. Figure 5 shows age-specific shares of the overall costs in the health system

Figure 4: Share of employees who are unfit for work



Data: Wehrmann, 1989; AOK Bundesverband

and the share of the foreign population in the respective age groups. Foreigners are over-represented in younger groups which incur only a small share of the overall costs. Among those age-groups with the higher cost share foreigners are under-represented. If the costs in the health system were distributed only according to the age structure, the average foreigner would incur costs of 964 DM, an average German 1,470 DM (in 1984).

Although it is impossible to make a sound estimate that links all different aspects, it appears that foreigners have, up to now, been an asset for health insurance. They pay more contributions and they incur lower costs. In the past they were even more favourable for health insurance than today. As the foreign population in Germany grows older, however, their positive effect on health insurance will decrease.

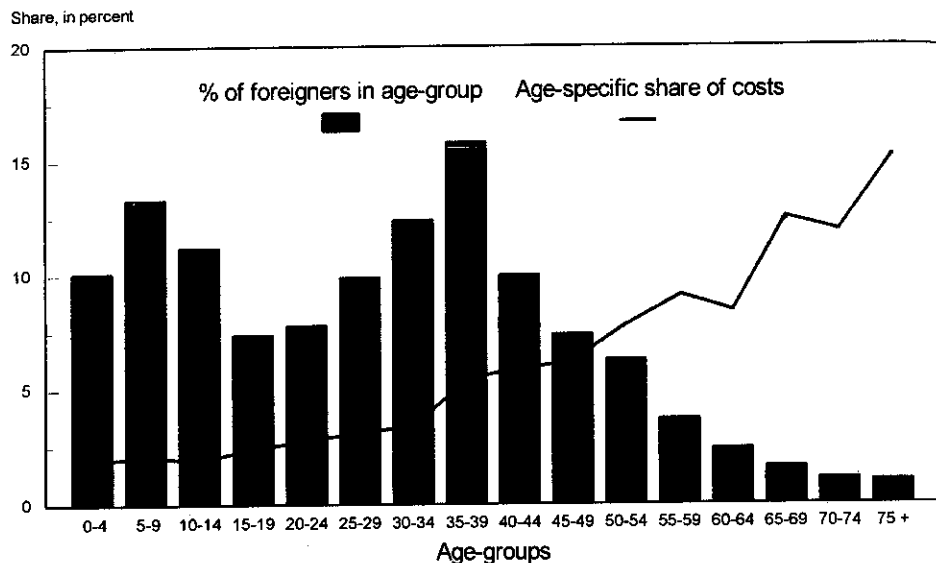
5.3. Pension Insurance System

As in unemployment insurance, the individual pensions paid are proportional to the contributions made in the past. A specific factor here is the large time lag between the payment of contributions and the receipt of benefits. Immigrating foreign workers were young. Thus, starting from the moment when the foreign population in Germany began to grow, its impact was only on contributions. During this period and still recently they are obviously a positive factor. Decades later these people will incur costs for the pension insurance system.

Rehfeld (1991, p.491) has calculated contributions and pensions for Germans and foreigners for 1989. With 12.8 billion DM, foreigners paid 7.8% of all contributions. They received 3.7 billion DM in pensions 1.9% of all pensions paid. The surplus of 9.1 billion DM paid in contributions by foreigners could be used to finance pensions for Germans. That was about a quarter of the transfers from taxation to the pension insurance system.

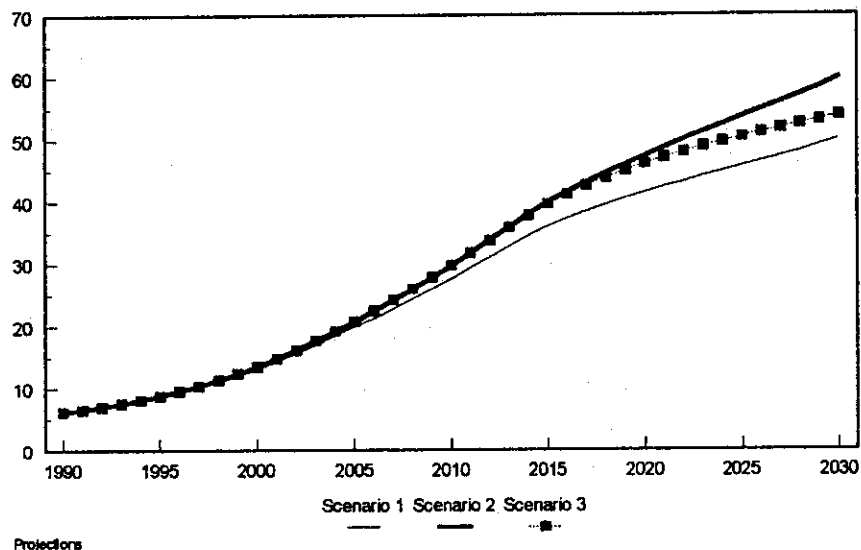
Inevitably the foreign population in Germany will grow older in the future if there is no exponential increase in immigration. The growing share of foreigners among pensioners can already be seen. At the beginning of 1991 the share of foreigners among all pensioners was 5.3% , while their share among new pensioners in 1990 was 9.4% (Rehfeld, 1991, S. 487).

Figure 5: Age-groups' share of the cost for medical treatment and foreigners' share of age-groups, 1984



Data: Camphausen 1983; Statistisches Bundesamt

Figure 6: Age-dependency ratio for the foreign population in Germany, 1990-2030



Projections

The future relationship between foreign contributors and pensioners depends on the future age structure and the development of the labour force participation rate (LFPR). The LFPR of foreigners in Germany in the sixties was higher than the German LFPR, while it has adjusted closely to German figures during recent years. The future age structure of the foreign population can be projected in a rather narrow error margin, depending on assumptions about fertility and net immigration. This has been done with a simple cohort-component projection. Figure 6 shows the future development of the age-dependency ratio (persons older than 60 in relation to persons between 20 and 60) under various assumptions.⁵

In 1987 the age-dependency ratio for Germans was 38 percent. It is widely assumed (Barth/Hain, 1990; Rosenberg, 1990) that Germans will have an age-dependency ratio of over 70% in the year 2030. Foreigners had an age-dependency ratio of 6.3% in 1987. Scenario 1 implies continued net immigration of 200,000 foreigners annually. This was the level reached in the sixties, when there was a build-up of the foreign population in Germany. Here the age-dependency ratio of foreigners would grow to 50% in the year 2030. We would then have a foreign population of 5.6 million people in that year. Scenario 2 assumes a linear reduction in net immigration to zero by the year 2000. Then the ageing of the foreign population would develop even faster and reach an age-dependency ratio of 60% in 2030. The foreign population in Germany would then amount to 4.6 million people. This shows that a continued net immigration at a high but realistic level (200,000 persons per year in scenario 1 could slow the ageing of the foreign population slightly, but cannot stop it. A third scenario shows the impact of a stall in fertility decline. In this case net immigration was reduced as in scenario 2, but the total fertility rate would increase to 2.1 in the year 2000 and then remain constant at reproduction level. In this case the age-dependency ratio would increase only to 53.8% in 2030.

These simulations show that the positive effect of foreigners on the pension insurance system is of temporary nature. It will be reduced in the next years. This would even be the case if there were continued net immigration on the average level of the sixties, as assumed in scenario 1. The surplus of foreigners' contributions in the past allowed a level of pensions today that will be difficult to maintain in the future. Thus, for the pension insurance system, the redistribution between generations

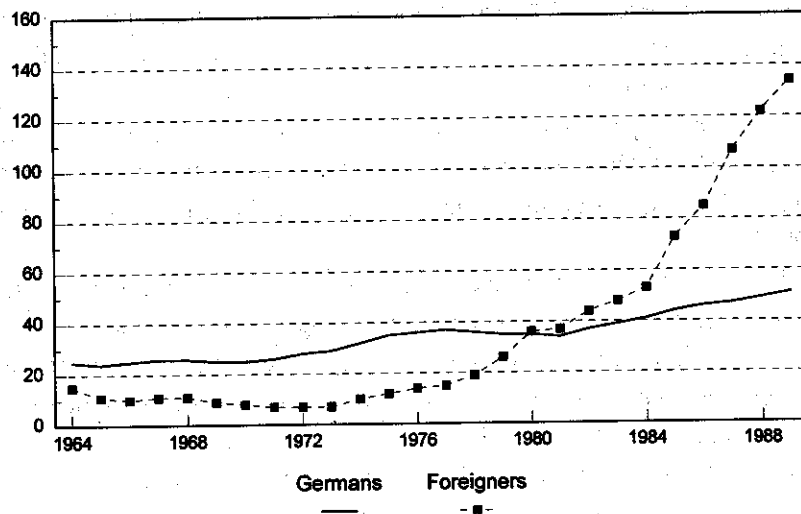
seems to be more important in the long run than a potential redistribution between Germans and foreigners.

5.4. Child allowances

Foreigners in Germany are eligible for child allowances. In the past this applied even if their children lived in their countries of origin. Macro-data shows that the proportion of foreigners among eligible parents and among children is higher than their share of the population. Thus, they receive a higher percentage of child allowances than Germans. This is mainly due to the higher number of children in average foreigners' families. According to German regulations, children of a higher parity (second, third, fourth etc. child) receive more allowances than the first child. Thus, for foreigners even the allowances per child are higher than for Germans. During the 'seventies foreign workers increasingly brought their families to Germany. The allowances paid for children were higher if they were living in Germany. That is the main reason for the growing receipt of child allowances by foreigners.

There is another, less important reason. German regulations on child allowances have changed several times since 1970. During certain periods there was a limit in household income for the receipt of child allowances

Figure 7: Receipts of Social Security Benefits



Data: Bundesanstalt f. Arbeit

so that households which had a higher income could not receive them. There were proportionally more German households than foreign ones above this limit. So, while these regulations were applied, the share of foreigners among recipients increased.

The higher receipt of child allowances among foreigners should not only be seen as a cost factor. Since their children will pay taxes and contributions tomorrow, it is also an investment in the future. However, since the fertility of foreigners in Germany is rapidly declining, the difference in child allowances will gradually disappear in the future.

5.5. Social Security Benefits

Foreigners are eligible for social security benefits under the same criteria as Germans. This also includes applicants for political asylum. The Federal Department of Labour (Bundesanstalt für Arbeit) releases data on the receipt of social security benefits for foreigners and Germans. Applicants for political asylum are included in these figures as foreigners. Figure 7 shows recipients of social security benefits per 1,000 inhabitants.

Foreigners' use of social security benefits increased rapidly after 1973. After 1980 it was higher than among Germans. This tendency reflects the position of foreigners on the German labour market which is worse than before 1973. Additionally, the change in the reaction of foreigners to unemployment, staying in Germany instead of returning, had an impact.

Until recently, for older Germans, insufficient pension entitlements were often a reason for the receipt of social security benefits. This has lost its importance in recent years. Thus, for the future we can expect an increasing number of older foreigners who are below the poverty level with their pensions. In 1989 the average period of past contribution payments for foreigners over age 60 was one third of the corresponding figures for Germans (Rehfeld, 1991, S. 486). Even if foreigners receive pension transfers from their countries of origin, these will often not cover their living costs in Germany. We can expect a growing need for social security benefits with the ageing of the foreign population.

6. Conclusions

The effect of foreign immigrants on Germany's public purse have been discussed in this paper. It was not possible to give a complete and comprehensive picture of all aspects of the problem. Nevertheless, this analysis went beyond previous studies for Germany.

The main results are:

- In the past, foreigners paid more to the public purse than they received. This remains today the case mainly because of their large net contribution to the pension system.
- The juvenile age structure of foreigners is one of the main reasons for this balance.
- In the 'sixties there were additional reasons including a higher labour force participation rate, lower unemployment rate and less absence due to illness. These disappeared in the past decades. These factors do not now favour foreigners' impact on the public purse.
- It is reasonable to assume that the foreign population in Germany will inevitably grow older. If the juvenile age structure loses its impact, foreigners might become a net burden for Germany's public purse in the future.

Some of the fields not explicitly covered by this study could usefully be subject to future research. The consumption of publicly financed goods, like education, infrastructure etc. might be attributed to both subgroups by means of indirect estimates. This has been done for other countries. (see for Switzerland: Straubhaar/Bernd, 1993) But it is not expected that this will substantially change the picture.

An important area for future research seems to be the changing position of foreigners on the German labour market. Only if immigrants succeed on the labour market will they continue to be a positive economic factor for Germany as in the past. There seems to be evidence that foreigners' labour market position became more difficult after unification and that they have in the past been displaced by migrants and commuters from East Germany. Active support for language training and vocational qualifications for foreign workers — as has been given to immigrants of German ethnic origin (*Aussiedler*) — might prove to be a good investment.

Bibliography

- Akbari, Ather H. : *The Benefits of Immigrants to Canada: Evidence on Tax and Public Services.* Canadian Public Policy; 15(4), December 1989, pages 424-35, 1989
- Bach, H.U.: Entwicklung und Struktur der Ausländerarbeitslosigkeit in der Bundesrepublik Deutschland. In: *Aspekte der Ausländerbeschäftigung in der Bundesrepublik Deutschland.* Nürnberg 1987
- Barth, Siegrun; Hain, Winfried: Demographie und Rentenversicherung Langfristige Vorausrechnungen zu den Rentenfinanzierungen. *Deutsche Rentenversicherung*; 10-11, 1991, 724-739, 1991
- Berntsen, Roland: *Einkommensanalysen mit den Daten des Sozio ökonomischen Panels unter Verwendung von generierten Einkommensdaten.* Sfb 3-Arbeitspapier Nr. 291. Frankfurt-Mannheim, 1989
- Blau, Francine D.: The Use of Transfer Payments by Immigrants.. *Industrial and Labor Relations Review*; 37(2), January 1984, pages 222-39., 1984
- Camphausen, Bernd: *Auswirkungen demographischer Prozesse auf die Berufe und die Kosten im Gesundheitswesen.* Springer Verlag; Berlin, Heidelberg, New York, 1983
- Deiniger, Dieter: Sozialhilfeempfänger 1988. *Wirtschaft und Statistik*; 6/1990, 1990
- Dietz, F.: Entwicklung und Struktur der beschäftigten ausländischen Arbeitnehmer in der BRD. In: *Aspekte der Ausländerbeschäftigung in der Bundesrepublik Deutschland.* Nürnberg 1987
- Gieseck, Arne; U. Heilemann; H. D. von Loeffelholz: Wirtschafts- und sozialpolitische Aspekte der Zuwanderung in die Bundesrepublik. *Aus Politik und Zeitgeschichte*, B7 1993
- Greenwood, Michael J.; McDowell, John M.: The Factor Market Consequences of US Immigration. *Journal of Economic Literature*; 24(4), December 1986, pages 1738-72., 1986
- Kaiser, Helmut: Die Mehrwertsteuerbelastung privater Haushalte in der Bundesrepublik Deutschland. *DIW-Vierteljahresberichte*, Heft 1, 1989
- Kassella, Thomas: *Die Konstruktion eines synthetischen Mikrodatenfiles für steuerpolitische Simulationen.* Sfb 3 Arbeitspapier Nr. 266. Frankfurt Mannheim, 1988
- Land, F.J.: Zur Hypothese vom 'Mißbrauch der Krankenversicherung' durch ausländische Arbeitnehmer. *Soziale Sicherheit* 4/1984
- Miegel, Meinhard: *Arbeitsmarktpolitik auf Irrwegen.* Bonn 1994

- Rehfeld, U.: Ausländische Arbeitnehmer und Rentner in der gesetzlichen Rentenversicherung. *Deutsche Rentenversicherung* 7/1991, S. 468-492, 1991
- Rosenberg, P.: *Das soziale Netz vor der Zerreißprobe?* Frankfurt/M. 1990
- Rothman, E.S.; Th. J. Espenshade: Fiscal impacts of immigration to the United States. *Population Index* 58(3), Fall 1992
- Simon, Julian L.: *The economic consequences of immigration.* Oxford and Cambridge, Mass.: Blackwell in association with the Cato Institute, 1989., pages xxxii, 402, 1989
- Simon, Julian L.: Immigrants, Taxes, and Welfare in the United States. *Population and Development Review*; 10(1), March 1984, pages 55-69, 1984
- Simon, Julian: *What immigrants take from, and give to the public coffers.* Illinois 1980, mimeo
- Usher, Dan: Public Property and the Effects of Migration upon Other Residents of the Migrants' Countries of Origin and Destination. *Journal of Political Economy*; 85(5), October 1977, pages 100-120, 1977
- Wehrmann, Martin: *Auswirkungen der Ausländerbeschäftigung auf die Volkswirtschaft der Bundesrepublik Deutschland in Vergangenheit und Zukunft.* Baden-Baden 1989
- Wiegand, Erich: *Die Inanspruchnahme ausgewählter Sozialleistungen durch Ausländer. Ergebnisse der Ausländerumfrage 1982.* Arbeitspapier Nr. 134. Sonderforschungsbereich 3. J.W. Goethe Universität Frankfurt und Universität Mannheim, 1984
- Wiegand, Erich: Zunahme der Ausländerfeindlichkeit? Einstellung zu Fremden in Deutschland und Europa. *ZUMA-Nachrichten* 31, Jg. 16, November 1992

References

1. This paper is based on research supported by the German Research Foundation (DFG).
2. In David Usher's analysis for the U.K. (1977) public consumption is seen as the factor income of public property, considered as a capital stock. Then immigrants receive shares of public property when they arrive in the country without making any financial contribution to them. In the past they did not invest in the public property of the host country. Thus, natives' share of public capital declines with the arrival of new immigrants. There is a dilution of public capital for natives. From this point of view a transfer from natives to immigrants is inevitable. Usher's view has some relevance for parts of the infrastructure. Roads, railways and recreation facilities etc. have been built in the past, financed by natives' and older immigrants' tax payments. Once arrived, foreigners contribute with their tax payments to the construction of new roads, bridges etc. In the case of temporary labour migrants they might never use these roads after returning to their home countries. For most public services and transfer payments, current financial flows are important rather than the dilution of a stock of public capital. Here Usher's approach is clearly not adequate.
3. The author thanks Mr. Berntsen for his kind support.
4. As already mentioned the average figures for foreigners and Germans have been tested to be significantly different (below 0.001 level).
5. All scenarios assume an increase of life expectancy for foreigners at birth. Until the year 2010, female life expectancy will increase to 80 years, and male life expectancy to 74 years. After that, life expectancy will stay constant. Scenario 1 and 2 assume that foreigners' total fertility rate will further adjust to the level of German TFR. Until the year 2010 it would decrease to 1.4 and then remain constant. For all scenarios the age structure of net immigration remained constant at the 1987 values: 33.5% of net immigrants were below the age of 18, 62.9% between 18 and 40, 3% between 40 and 50 and .6 over 50. The model has been calculated in five-year cohorts.