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Analysis and Forecasting of International Migration by Major Groups (Part II)

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Preface

In September 1994, a consortium of research centres headed by Statistics Netherlands submitted a proposal to Eurostat for revising and extending previous population and labour force scenarios on both the national and regional level for the countries of the European Economic Area (EEA). This proposal was submitted in response to the Eurostat call for tender no. 94/S/150, Lot 5 "Demographic Projections". In March 1995, the proposal was formally accepted by Eurostat.

Lot 5 consists of several sub-projects. One of these sub-projects (project 3) is called 'Analysis and Forecasting of International Migration by Gender, Age and Major Groups, part II'. This project is a follow up of a study of the same name (part I) carried out in 1995 by the Migration Research Unit of the University College London (UCL). The overall objective of both parts of the study is to improve international migration assumptions in demographic forecasts.

The present report is the outcome of part II of this sub-project. It was carried out by the Netherlands Interdisciplinary Demographic Institute (NIDI) in the period September 1987-June 1998. Prof. John Salt and Mrs. Ann Singleton of the UCL helped us with comments during early phases of the project, and in evaluating the results. Eurostat supervised the progress of the work in the person of Harri Cruijsen. We owe special thanks to our colleagues Rob van der Erf, Mik van de Klundert en Erwin Kuiper, who helped us to find our way in the migration and asylum database of Eurostat, and advised us in various parts of the study on migration and asylum issues.

The Hague, December 1998

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1. Introduction

1.1 | The context of this study

International migration is one of the key components of population projections, especially in the countries of the European Union, where typically population growth due to natural increase is very small or even negative. The key to determining the future population size in these countries is the migration component. In recent years most countries in the EU are net receivers of migration, and consequently immigration is the key to understanding the migration component. In the latest national population scenarios for the countries of the European Economic Area (EEA), produced under the auspices of Eurostat by Statistics Netherlands, most countries will remain net immigrant countries in the next decades, and migration will be the most important population growth component in this period (De Beer and De Jong, 1997).

Despite its key role in population growth in the EU, migration is very difficult to project. The uncertainties surrounding migration forecasts are much larger than those of mortality or fertility. Migration is a complex phenomenon and many factors are at play. Migrants are for instance motivated by economic reasons, by reasons of family or relatives ties, or because they seek refuge for war or repression. Therefore, migrants are not a homogeneous group with identical motivations, intentions and behaviour. This observation motivated Eurostat to launch a research programme on international migration under the title: "Analysis and forecasting of international migration by major groups". The general aim of this programme is to improve international migration assumptions in national forecasts within Europe.

Part 1 of this study programme was carried out by the Migration Research Unit of University College Londen (UCL) in 1994-1995 by John Salt and Ann Singleton (Salt and Singleton, 1995). In their first report they examined recent developments and current practice in projecting international migration in the member states of the EU and the EFTA countries. The study also proposed a conceptual model for the analysis of international migration, accompanied by a typology of migrant groups. This conceptual model is the basis for the research undertaken in part II of the study.

1.2 | Aims of part II

Part II of the migration research programme builds on the results of part I. In particular, in part II a number of empirical issues are studied, which follow from the conceptual model developed in part I. The aim of part II is to assess empirically a number of key concepts and relationships hypothesized in the conceptual model. This is done by examining observed trends in migration by a number of major groups identified in the conceptual model, and by establishing the structural relationships between migration and explanatory factors that could in principle be used to improve migration forecasts.

This empirical research is largely based on the Eurostat database on international migration and asylum, which is still 'under construction'. The present study may therefore also be viewed as a first analytical approach to this database.

The major task of part II of the project 'Analysis and Forecasting of International Migration by Gender, Age and Major Groups', is the assessment of the conceptual migration projection model developed by UCL. As this model is very comprehensive, actual assessment of the model will be hampered by several reasons, of which data problems are probably the most serious ones. Consequently, for the nearby future, it is impossible to satisfy the full needs of the UCL-model.

In the conceptual model of UCL, economic, social, political, and spatial restructuring are key processes underlying international migration flows. These concepts return in the current project as follows:

- With respect to economic restructuring, an attempt will be made to quantify the relationship between economic indicators and immigration flows. Examples of economic indicators are unemployment, income, and gross national product.
- In social restructuring, the existence of networks may play an important role in migration due to family formation and reunification. Therefore, immigration flow and stock data will be linked in an attempt to quantify migration patterns for family reasons.
- Also within the broad category of social restructuring, an analysis of the relative importance of retirement migration will be made.
- With respect to political restructuring the impact of European integration on the size of the migration flows will be examined. Integration is here defined in terms of the enlargement of the European Community with Spain and Portugal in 1986, which resulted in changes in the nature of borders between European countries.
- One of the major consequences of international political and spatial restructuring, is the emergence of large flows of asylum seekers to the EU and EFTA countries. The consequences of these flows for immigration will be examined.

Analyses will be carried out for a subset of EU-countries, covering the dimensions northern/ southern, 'big/small', and data rich/poor data. In view of these requirements the following countries were chosen: Germany, the Netherlands, Portugal, Sweden, and the United Kingdom. In some cases other countries will be taken into account as well.

1.3 Outline of the report

In Chapter 2 the relationships between a number of economic indicators and immigration is studied. We use two different time series for each country: a longer time series without detailed aggregation, and a shorter time series (1985-1995) that allows a detailed breakdown according to nationality. In Chapter 3, the impact of the size of the migration stock upon immigration is examined. This analysis builds upon the results of the analysis of chapter 2. Next, in Chapter 4, the importance of elderly migration in international migration is evaluated empirically. Chapter 5 examines the impact of the extension of the Union with Spain and Portugal in 1986 on migration flows within Europe. Chapter 6 deals with the relationships between applications for asylum and immigration. Next, in Chapter 7 the current Eurostat database on migration and asylum will be evaluates. In particular, the usefulness of the Eurostat database on migration statistics for the present analyses is assessed. A major question to be answered here is whether the available data permit a similar type of analysis for more countries in Europe. In addition, the main gaps in the data are identified. Finally, in Chapter 8, some general conclusions will be drawn.

2. Economic indicators of migration trends in selected European countries

2.1 | Introduction

In this section an in-depth analysis will be made of immigration patterns in relation to economic indicators into four countries: The Netherlands, Germany, Sweden, the UK, and Portugal. The method used will be described in some detail for the Netherlands, in order to understand fully the steps taken in the approach. For the other countries, an identical approach was used, if data availability permitted. The results will be reported with less detail than for the Netherlands however.

The relationship between migration and economic indicators is generally covered by demo-economic models. However, in these models the relationship is two-sided: migration may have an effect on unemployment and production as well. For demographic forecasting, these complex relationships are usually not taken into account. Here, attention is focussed on the impact of economic indicators on migration, and not *vice versa*. However, we cannot study economic variables in isolation, since other factors, such as policy interventions, are important as well. Therefore, a model that tries to capture the effect of economic indicators, should also take other factors into account.

2.1.1. Explanatory Indicators used

Policy variables. Migration flows are the result of many factors. Earlier the impact of stricter policy measures on immigration and asylum-seekers was mentioned already. The effective period of a policy measure remains unknown however. In some instances it appeared that measures had only short-term effects. The introduction of immigration visa for Turks and Moroccans in the early 1980s is a case in point here: after a short reduction the immigration numbers increased again. For the Netherlands, two policy interventions in migration are significant and their effect should be made visible in time series models of immigration. The first is the independence of Surinam in 1975, that caused a large flow of immigrants from this country to the Netherlands in 1975 and 1976, followed, in 1979 and 1980, by a lagged inflow of those who decided within the maximum period of five years after independence, for Netherlands citizenship. The inflow around 1975 consisted of both Dutch and Surinamese nationals, the second inflow around 1980 consisted of Surinamese nationals, who obtained Dutch citizenship upon arrival in the Netherlands. For this policy intervention we use a dummy variable SURINAM, with values 1 for the years 1975, 1976, 1979 and 1990, and 0 otherwise. This variable is in principle only relevant for Surinamese immigrants, but in the present analysis we work with more aggregated groups of migration. Therefore, this dummy variable is used in immigration of non-nationals and non-EU12-foreigners. For nationals an adjusted dummy variable is used with values 1 for 1975, and 0 otherwise. For EC-foreigners this policy interventions is not applicable. The second policy intervention occurred in 1994, when, as a result of the large increase in immigration mainly due to asylum seekers, more

restrict immigration rules were introduced. The corresponding dummy variable is termed POLICY and has values 1 for the years 1994 and beyond, and 0 otherwise. This variable is only relevant for non-nationals, and non-EU12-foreigners in particular.

Economic variables. The economic business cycle is another strong factor. The unemployment rate (UNEMP) is negatively related with immigration from EEA countries (De Beer, 1995). But other economic indicators may be influential as well, such as gross domestic product (GDP) per inhabitant, or wages. The latter variable is measured as compensation per worker (COMP). These economic indicators may be measured at the *structural* level, where the absolute size of the wage or GDP is important, or at the level of the economic business cycle, where (annual) change in the wage rate or GDP is important. In practice in time series models, the annual relative change in economic indicators is more relevant than the structural variables. In these applications they are denoted as D_COMP and D_GDP. Structural variables may explain differences between countries, but, due to their relative invariance, they are of limited importance in time series models. Nevertheless, both the absolute level of GDP per inhabitant (in Ecu's) was available (GDP_a) as well as the deviation of this level from the EC mean value (GDP_r), and they were used in the modelling exercise.

Other variables. A third group of factors are of a more general nature: improved communication networks and travel opportunities. In general the reduction of the effect of distance on interaction and the greater global awareness has stimulated migration decisions of people. Of course, the increase in the world population, especially in the developing countries, is an important factor as well. The general effect of these factors is captured by a linear trend term (LINEAR), which describes an autonomous and linear change in the level of immigration across time, irrespective of policy and economic effects.

2.1.2. Hypotheses

The hypotheses regarding the coefficients of these explanatory variables were:

- the effect of the independence of Surinam (SURINAM) is positive for non-nationals, non-EC-nationals and (in adjusted form) nationals;
- the effect of restricted immigration policies (POLICY) is negative for non-nationals, non-EC-nationals;
- the effect of the linear trend (LINEAR) is positive: there is an autonomous increase in immigration not accounted for by policy and economic variables;
- the effect of the unemployment rate (UNEMP) is negative;
- the effect of the annual change in compensation per worker (D_COMP) is positive;
- the effect of annual change in GDP (D_GDP, GDP_a, GDP_r) is positive.

2.2 | The Netherlands

2.2.1. Migration in the period 1945-1995

Immigration to the Netherlands in the period following the Second World War was characterized by large numbers of immigrants from the former Dutch East-Indies and emigrants to Australia, New-Zealand, Canada, the United States, and South-Africa. As a result of large emigration flows in the 1950s the net migration number was negative in most years. In the 1960s the economic situation improved significantly and therefore emigration

decreased. By the same mechanism immigration started to increase, mainly from southern European countries Italy and Spain. In the second half of the 1960s they were followed by Turks and Moroccans. The latter groups differed from Italians and Spanish immigrants because they usually stayed permanent.

In the 1970s the labour migration originating in the 1960s was followed by migration through family reunification. In addition a large inflow of Surinamese occurred as a result of the independence of Surinam in 1975. The consequences of the independence were felt up to 1980 due to a treaty between both countries that Surinamese could choose for the Dutch or the Surinam nationality in the five years following independence. The immigration peak in 1975 was reinforced by the legalization of 10,000 illegal immigrants.

After labour migration in the 1960s and family reunification in the 1970s, the character of immigration changed in the 1980s to family formation, especially from Turkey and Morocco, but also from Germany and Belgium. Since the second half of the 1980s, immigration increased mainly as a result of the growing numbers of asylum-seekers. Family reunification from Turkey and Morocco became less important in this period. This trend persisted in the 1990s, where asylum-seekers are the dominant group of potential immigrants. Immigration from the 'traditional' immigration countries Turkey and Morocco has decreased sharply, and the inflow from Germany and the United Kingdom has increased. A large group of asylum-seekers and refugees come from the countries of former Yugoslavia. The number of immigrants reached a peak in 1993, and dropped hereafter, mainly as a result of stricter immigration rules. First, the terms for application for asylum were tightened in 1994. Rules for family reunification and formation were changed in 1993. In addition, a residence permit for a period longer than three months is more difficult to obtain since 1994. Measures have been taken against fake-marriages, and registration into the population register is more strict (Sprangers, 1996; De Beer, 1997; De Beer *et al.* 1997). *Figure 1* gives an overview of the time trend of immigration by major groups of nationalities into the Netherlands in this period.

2.2.2. Immigration in the period 1985-1995

In this period the number of immigrants increased up to the level of approximately 120 thousand, where it remained relatively stable in the years 1990-1993. Due to the adoption of stricter rules the level dropped in 1994, but increased again in 1995. The trend in immigration is mainly determined by immigrants with other nationalities. Immigration of nationals has remained reasonably stable. The distribution over the various nationalities has changed somewhat in this period: the proportion of non-European and non-EEA countries has increased to some extent. The predominant nationalities are Turkey, Morocco, the United Kingdom, Surinam, and Germany. *Figure 2* presents the time trends for these groups in the period 1985-1995.

In the next subsections the annual variation in migration is explained with reference to a number of explanatory factors. We will analyse two time periods: a long time period, covering the period 1968-1995, and a short time period, that starts in 1985. Both types of analysis have advantages and disadvantages. The long time period, having more observations, includes periods of economic down- as well as upswing. The level of detail is limited however. More detailed information on migration flows are available starting in 1985, but the observation period is very short. An overview and evaluation of the Eurostat database on migration for the present analysis purpose is given in Chapter 7.

Figure 1. Time series of immigration into the Netherlands by major group of nationality 1968-1995

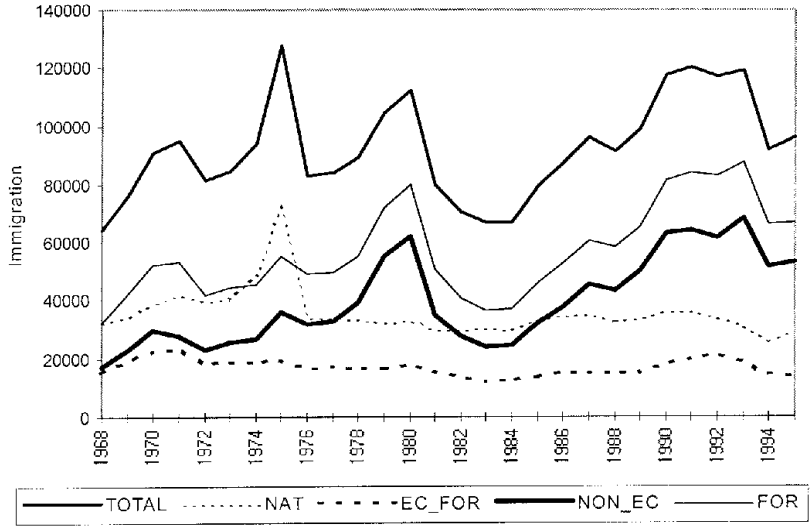
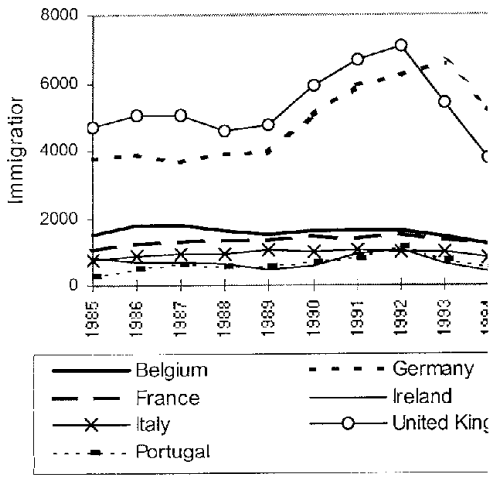
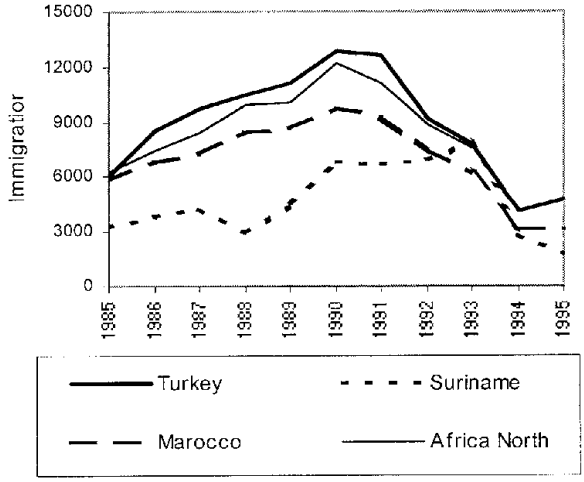


Figure 2. Time series of immigration by major nationalities 1985-1995





2.2.3. *Long-term analysis*

Specification. Starting with long-term data a series of regression models were estimated. The dependent variable in these analyses was immigration and a distinction was made between total, nationals, non-nationals (foreigners), EU12-foreigners and non-EU12-foreigners. *Figure 1* shows the variation over time of immigration by citizenship into the Netherlands. In principle for each of these groups four models were fit. First, a reference model was fit that contained as the explanatory variables a linear trend plus two dummy variables relating to policy interventions. One policy variable (SURINAM) relates to the independence of Surinam in 1975, followed by the lagged effect of this event in 1979 and 1980. For nationals only the effect around 1975 is important, and for EC-foreigners the effect is not relevant at all. The other policy variable (POLICY) corresponds to the introduction of more restricted immigration rules from 1994 onwards. For nationals and EU12-foreigners these policy variables do not apply. Next, economic indicators were added subsequently to this reference model, in particular: unemployment (UNEMP) in model 2, the annual variation in the compensation per worker (D_COMP) in model 3, and finally in model 4 the effect of GDP per capita. This variable was included in three ways: the absolute level (GDP_a), the deviation from the EU12 mean value (GDP_r), and annual change (D_GDP). Due to the general poor performance of GDP_a and GDP_r) in the final presentation we only include the results of the annual change in gross domestic product, D_GDP.

In order to assess the relative importance of the regression estimates, we first look at standardized coefficients. Later, when comparing results of the various models across countries, we use unstandardized values.

The reference model. *Table 1* shows the results of the estimation of the reference model for five groups of citizenships. The explanatory power of these models, as measured by the R^2, varies from 0.13 for EU12 foreigners to 0.79 for nationals. For immigrants with a Dutch or EU-nationality the effect of the linear trend is negative. For EU12-foreigners the explanatory power of the reference model is very low. It includes only a linear term without any policy variable, and this is clearly insufficient. For the other groups the model is more interpretable. The effect of SURINAM as defined above is positive for all models. Note that the interpretation of this variable for nationals is slightly different: it refers to the 1975 peak in immigration only. This variable is not applicable for EU12 foreigners and the effect of POLICY does not apply to nationals and EU12 foreigners.

Unemployment, labour compensation and GDP. The reference model is the basis for a number of extended specifications with economic indicator variables. We start with adding one economic variable at the time to the reference model.

The addition of unemployment improves the fit of the model substantially, with the exception of the model for nationals. The R^2 varies between 0.58 for EU12 foreigners to 0.94 for non-EU12 foreigners (see *Table 2* and *Figure 3*). For all models there is some multi-collinearity between the trend variable and unemployment (correlation 0.68), so that there is some difficulty in establishing their relative effect. However, all models show a negative sign for unemployment, as it should be, and a positive sign for the linear trend. The size of the standardized coefficients for the POLICY, linear trend and unemployment variables for total, non-nationals and non-EU12 foreigners are highly similar. The small improvement in model fit for nationals may be due to multi-collinearity. If we remove the linear trend in this model, the R^2 value remains almost equal (0.81) and the standardized coefficient of UNEMP is larger than in the model with linear trend (-0.29).

In conclusion, adding unemployment to the model improves the fit of the models for all groups substantially. All policy and economic variables have the correct sign. The result for the model for nationals is different. There is a clear relationship with unemployment as well, but no linear trend can be observed for this group. The model describes the observed trend for EU12 foreigners markedly less precise than for the other groups.

Table 1. Reference model for immigration by (groups of) citizenship into the Netherlands in the period 1968-1995 (long-term analysis)

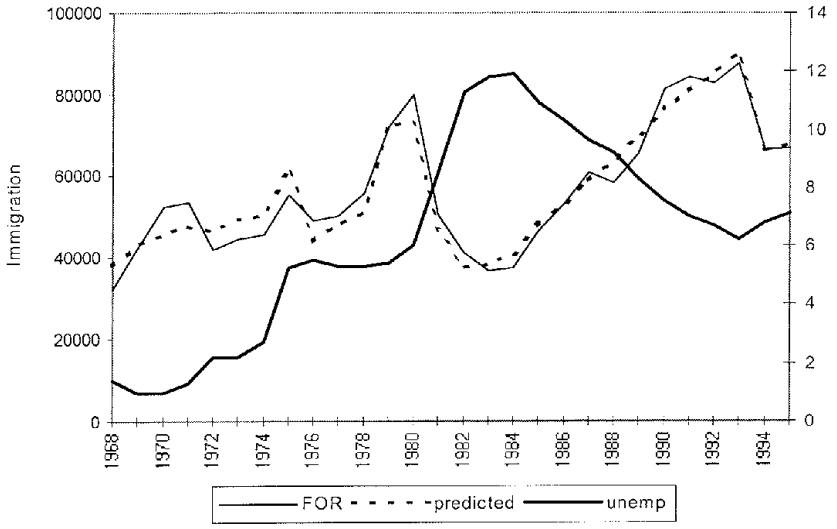
Citizenship	R^2	Standardized coefficient:		
		POLICY	SURINAM	LINEAR
Total	0.45	-0.17	0.52	0.55
Nationals	0.79	-	0.80	-0.26
Non-nationals	0.57	-0.13	0.38	0.76
EU12 foreigners	0.13	-	-	-0.35
non-EU12 foreigners	0.71	-0.11	0.38	0.85

*Table 2. Regression models for immigration by groups of citizenship including **unemployment** into the Netherlands in the period 1968-1995 (long-term analysis)*

Citizenship	R^2	Change in R^2 *	Standardized coefficient of:			
			POLICY	SURINAM	LINEAR	UNEMP
Total	0.85	0.40	-0.46	0.53	1.33	-0.94
Nationals	0.82	0.03	-	0.81	-0.12	-0.21
Non-nationals	0.93	0.36	-0.41	0.38	1.5	-0.89
EU12 foreigners	0.58	0.45	-	-	0.25	-0.88
Non-EU12 foreigners	0.94	0.23	-0.33	0.39	1.44	-0.71

* relative to the reference model.

Figure 3. Immigration into the Netherlands of non-nationals; regression estimate reference model plus unemployment



The addition of the variable compensation per worker to the reference model improves the fit as well, as can be viewed from *Table 3*. The fit varies between 0.41 for EU12 foreigners to 0.85 for nationals. For nationals, this fit is slightly higher than that of the model with unemployment. Similar to the result for unemployment, we may remove the linear trend in this model and obtain a result that is almost identical in fit (0.84). The standardized coefficient of compensation per worker is slightly lower than in the model including the linear trend (0.35). For all other models the R^2 value is lower than for the model with unemployment.

The final economic variable, added to the reference model is GDP per capita. GDP was measured in three ways: in absolute terms (GDP_a), as a deviation from the EU average level (GDP_r), and as the relative annual change in GDP per capita (D_GDP). None of these variables improves upon the results (not shown) as compared to the reference model, although the sign of the variables is correct.

*Table 3. Regression models for immigration by groups of citizenship including **compensation per worker** into the Netherlands in the period 1968-1995 (long-term analysis)*

Citizenship	R^2	Change in R^2*	Standardized coefficient of:			
			POLICY	SURINAM	LINEAR	D_COMP
Total	0.74	0.29	-0.32	0.73	1.25	0.85
Nationals	0.85	0.06	-	0.81	-0.04	0.40
Non-nationals	0.71	0.14	-0.23	0.52	1.25	0.59
EU12 foreigners	0.41	0.40	-	-	0.16	0.72
Non-EU12 foreigners	0.78	0.07	-0.18	0.49	1.20	0.43

* relative to the reference model

Based on these results, a logical next step was to include both unemployment and compensation per worker into one specification. However, the improvement was marginal: an increase in the explained variance of at most 2 percent points (*Table 4*). The sign of the unemployment coefficients is correct in all models, and except for the nationals model, in the same order of magnitude (-0.74 to -0.99). The standardized coefficient of the compensation variable in the models is substantially lower, and not always of the right -positive- sign. Unemployment, when added in combination with change in compensation per worker is not important in predicting immigration of nationals. It may therefore be concluded that the unemployment variable gives the best model fit for immigration of all groups, with the exception of nationals The model for nationals is very well described by a linear trend plus one policy variable relating to the independence of Surinam in 1975. The effect of unemployment for nationals is very small.

The effect of economic variables may not be contemporaneous, but lagged: unemployment in year *t* as a predictor of immigration in year *t*+1. The results of this lagged model in terms of explanatory power were slightly less than the contemporaneous model, while the coefficients of both models were reasonably comparable.

Long-term analysis by age and sex. Besides immigration by groups of countries of citizenship immigration can also be broken down by age and sex. However, a combination of age and sex on the one hand and groups of countries of citizenship is not possible. The age- and sex-specific figures available for this analysis range until 1993. *Figures 4* and *5* present the time trends. Here we concentrate on the model with the two policy variables, a linear trend and unemployment. Separate models were estimated for men, women, and the age categories 0-14, 15-24, 25-39, 40-49 and 60+.

Both for men and women and for the various age groups the results are well interpretable (*Table 5* and *Figures 6* and *7*). The coefficient for the variable unemployment is negative in all cases, while the linear trend as well as the SURINAM variable have a positive coefficient. The results of the model for all ages is slightly different from the results found in the previous subsection, because the time period ranges only to 1993. The fit of the model for men is slightly lower (80 versus 83 percent). The most important variable for men as well as women is the linear trend, although unemployment is important, especially for men. The independence of Surinam turned out to be more important for women. This may be due to the fact that (married) men migrate first, followed in a later phase by their spouses and children.

Conclusions long-term analysis. A combination of one or two policy variables, depending on the group of nationalities, plus unemployment rate and a general linear trend "explains" the long term trend in immigration into the Netherlands fairly well, for a number of groups of citizenships. For immigration of nationals unemployment is not relevant. These results carry over to individual age groups and separate for men and women. The effect of unemployment is not lagged in time, but contemporaneous.

*Table 4. Regression models for immigration by groups of citizenship including **unemployment** and compensation per worker into the Netherlands in the period 1968-1995 (long-term analysis)*

Citizenship	R^2	*Change in R^2 **	Standardized coefficient of:				
			POLICY	SURINAM	LINEAR	UNEMP	D_COMP
Total	0.87	0.02	-0.46	0.60	1.41	-0.74	0.30
Nationals	0.85	0.06	-	0.81	-0.04	0.00	0.32
Non-nationals	0.93	0.00	-0.41	0.35	1.46	-0.99	-0.14
EU12 foreigners	0.59	0.01	-	-	0.29	-1.78	0.16
non-EU12 foreigners	0.95	0.01	-0.34	0.34	1.38	-0.84	-0.20

* relative to the best model including one economic variable.

Figure 4. Time series of immigration into the Netherlands by age groups

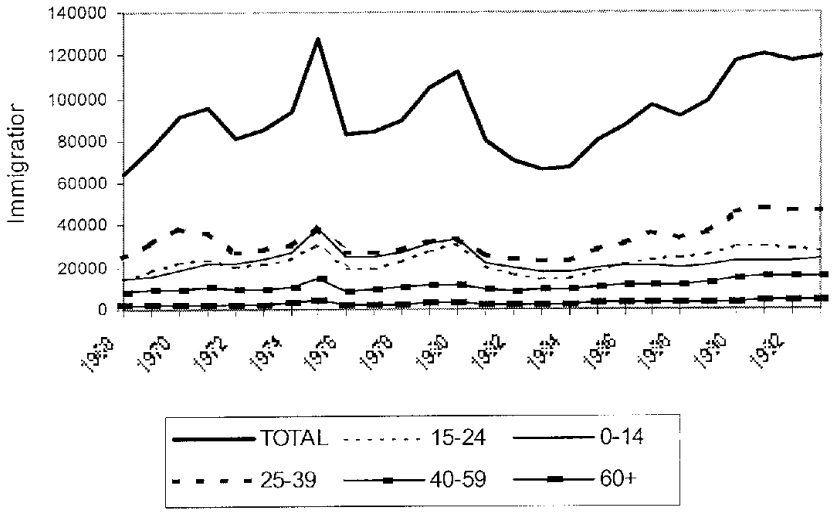


Figure 5. Time series of immigration into the Netherlands by gender

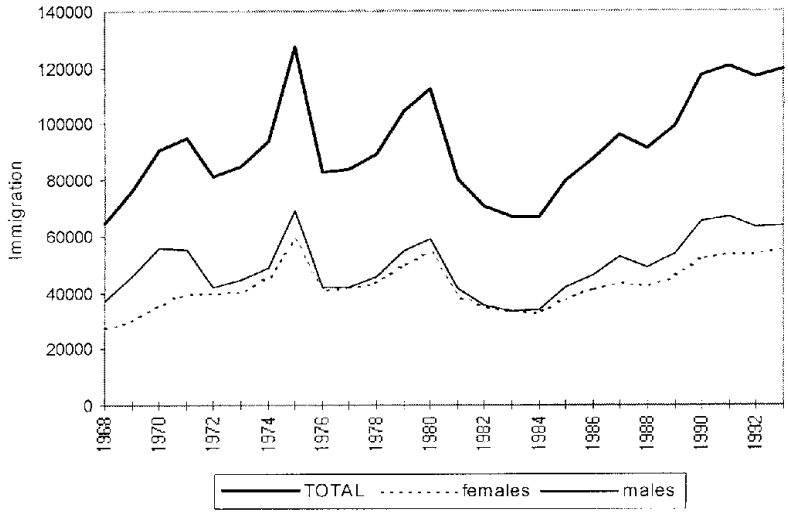


Table 5. Results of regression models for total immigration into the Netherlands for men and women and various age groups 1968-1993

Category	R^2	Standardized coefficient:		
		SURINAM	Linear trend	Unemp.
Total	0.85	0.53	1.19	-0.94
Males	0.80	0.45	1.17	-1.04
Females	0.83	0.58	1.12	-0.74
Age 0-14	0.66	0.79	0.30	-0.31
Age 15-24	0.87	0.58	1.15	-0.93
Age 25-39	0.79	0.18	1.31	-1.08
Age 40-59	0.84	0.34	1.30	-0.81
Age 60+	0.80	0.29	1.18	-0.49

Figure 6. Immigration to the Netherlands by gender; regression estimates (unemployment)

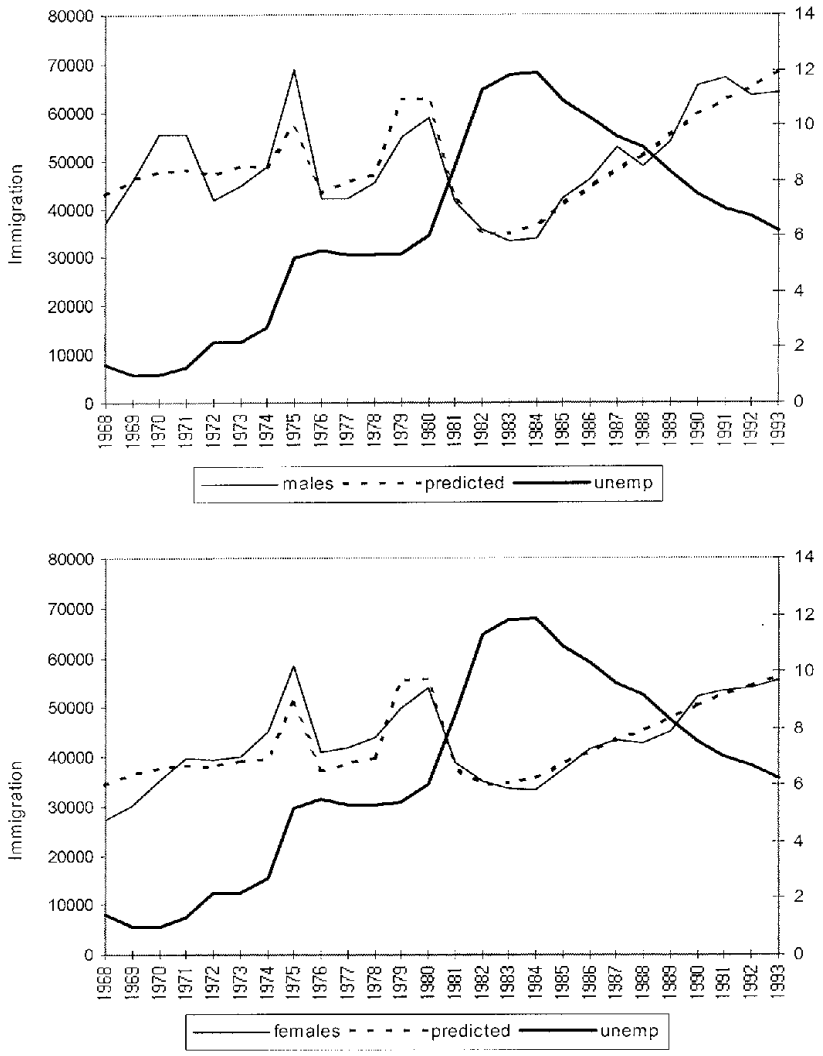
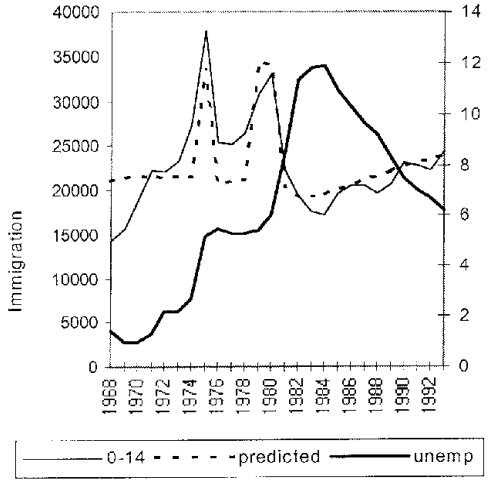
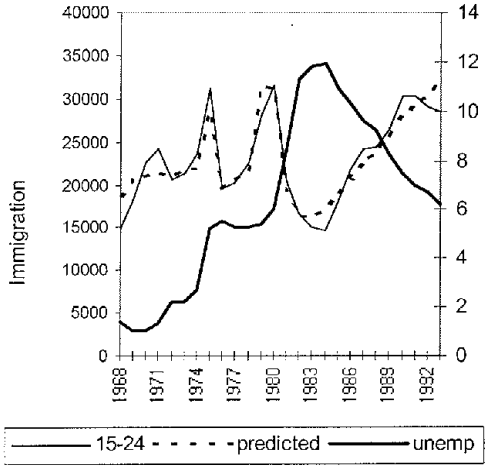
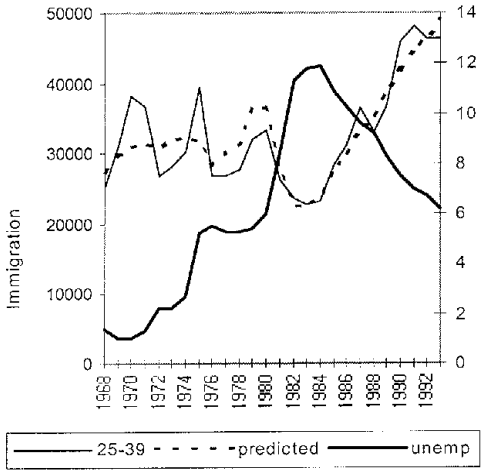
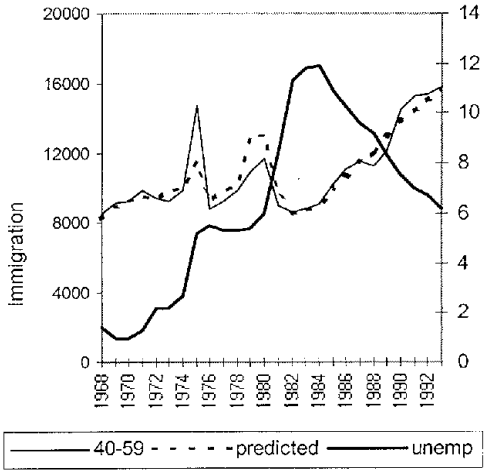


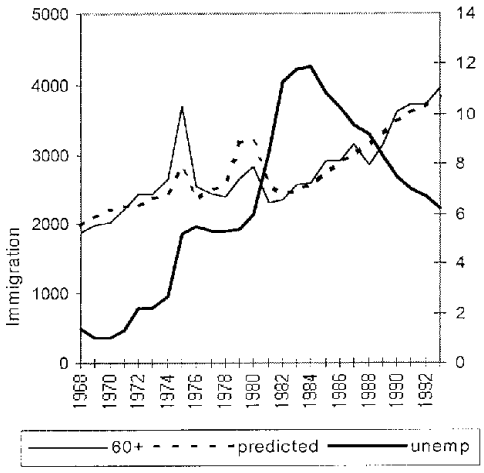
Figure 7. Immigration into the Netherlands by age, regression estimates (unemployed)











2.2.4. *Short-term analysis*

Specification. A disadvantage of the long-term models presented above is that the grouping of countries of citizenship may hide more than it reveals. Unfortunately for such long time series a finer distinction is not available. More detailed classifications by individual countries of citizenship are available from 1985 onwards. This allows the estimation of regression models by (a number of) individual countries of citizenship for the period 1985-1995. Figure 2 shows the time series for the most important immigration nationalities in this period.

The same explanatory variables as for the long-term analysis were used here, with two exceptions:

- the SURINAM variable defined above is not relevant for the period starting in 1985;
- For EU and EEA+ nationalities, the effect of POLICY should be zero, since stricter immigration rules do not apply to immigrants of other EU countries. Therefore, the reference model for these countries includes only a linear term.
- the variable GDP per capita is available until 1994 in absolute (GDP_a) and relative terms (GDP_r), as well as annual change in GDP (D_GDP)
- unemployment is also available for the countries of citizenship within the EU. Therefore, two unemployment variables can be included in the model, the one as a (negative) *push* factor (unemployment in the country of citizenship) and the other (unemployment in the Netherlands) as a (negative) *pull* factor. For groups of countries of citizenship no aggregate unemployment statistic was available

Since the number of observations is small (11) the number of variables that may be included in the model is very limited. The reference model is the model with the variable POLICY as defined before, plus a linear trend. Economic variables are added to this model one by one. As with the previous models for the long time series, we only look at R^2 values and (standardized) coefficients. The standard errors of the coefficients will be biassed due to the existence of temporal auto-correlation, and are not reported here.

Nationalities. The models were estimated for total immigration as well as for a number of immigration flows by country of citizenship or groups of countries of citizenships. A distinction was made between nationals and non-nationals. Another distinction was made between Europeans from EEA countries, including Switzerland (denoted as EEA+ hereafter), other European countries (excluding Turkey), immigrants from North African countries, and other countries. In addition, a selection of individual countries of citizenship were distinguished: the EEA countries Belgium, Germany, France, Ireland, Italy, Portugal, and the United Kingdom. These are the EEA-nationalities with the largest inflow into the Netherlands. Finally, three important nationalities from non-European countries were distinguished separately: Surinam, Turkey, and Morocco. This choice was made not only on the basis of the size, but also on the basis of the nature of the flows. For these reasons, immigration from the countries of former Yugoslavia and Somalia were not included in this analysis. Here the 'push' factors of war and political instability are the obvious reasons for migration, and the economic business cycle of the Netherlands is most likely of little concern to these immigrants. Indirectly though it is possible that economic circumstances of the receiving country may be of influence in determining the numbers of immigrants from these countries to be admitted. Therefore, in the long run systematic variation might be observed, but the current time series is too short to discern this systematic variation over time for these countries.

The reference model. The reference model, that includes a linear trend plus the POLICY variable defined above for the stricter immigration policy since 1994, for those nationalities that are affected by these policies, was estimated for various (groups of) nationalities. *Table 6* shows summary results: the R^2 value and the standardized values of the linear trend LINEAR and POLICY. There is no hypothesis regarding the sign of the linear trend coefficient, although it is likely that for most nationalities the sign will be positive. However, for some nationalities the trend may be downwards, due to specific reasons in the country of origin.

The reference model fits well for total immigration, non-nationals and non-Europe. Immigration of non-nationals follows an almost linear upward trend and with a lower level since 1994. The explained variance is 0.92, which leaves little room for additional variables. For nationals, without the POLICY variable, the fit is clearly lower (0.36) and the coefficient of the trend variable is negative. For the neighbouring EU countries Belgium and Germany the linear term is of modest importance and for all other EU countries not important at all. It is interesting to note that the sign of the linear trend for Belgium is negative, and for Germany is positive. The development in cross-border migration is different for both countries.

In conclusion, ror non-nationals, in particular those from outside the EEA+, a model with POLICY and a linear term describes the trend since 1985 fairly well. Immigration from North-Africa is an exception to this rule. Immigration from the EEA+, and individual nationalities within the EU follows a non-linear trend, with the exception of the neighbouring countries Germany and Belgium.

Unemployment, compensation and GDP. In a second step, the economic indicator variables were added one by one to the reference model. Since the length of the observation period is very small, adding more than one or two variables is not feasible. In these analyses unemployment in the country of citizenship is not included yet. *Table 7* shows a summary of the results compared to the reference model, in terms of change in R^2, and the standardized coefficients of the variable in question. The expected signs of the variable unemployment in the Netherlands is negative; unemployment in the country of citizenship is expected to have a positive sign, and compensation and GDP (measured in three ways as explained above) in the Netherlands should be positive as well.

Table 6. *Reference model for immigration by (groups of) citizenship into the Netherlands in the period 1985-1995*

Citizenship	R^2	sign of:	
		POLICY	Linear trend
Total	0.89	-1.07	1.23
Nationals	0.36	–	-0.60
Non-nationals	0.92	-0.93	1.29
EEA+	0.13	–	0.35
Europe - EEA+	0.87	-0.18	1.05
Non-Europe	0.82	-1.01	1.19
Africa North*	0.17	n.a.	0.41
EU-countries:			
Belgium	0.45	–	-0.67
Germany	0.51	–	0.72
France	0.04	–	0.19
Ireland	0.08	–	-0.27
Italy	0.07	–	0.26
Portugal	0.16	–	0.40
United Kingdom	0.00	–	-0.06
Other countries:			
Surinam	0.85	-1.23	0.97
Turkey	0.60	-0.95	0.32
Morocco	0.72	-0.98	0.22

* Time series available for North African countries 1985-1993.

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Table 7 Results of regression models of immigration into the Netherlands by (groups of) nationalities, 1985-1995

Citizenship	R^2 reference model	Model results when added the following variable:									
		Unemployment		Compensation		GDP_r		GDP_a		D_GDP	
		change in R^2	stand. coeff.	change in R^2	stand. coeff.	change in R^2	stand. coeff.	change in R^2	stand. coeff	change in R^2	stand. coeff.
Total	0,89	0,03	-0,51	0,01	0,13	0,00	0,01	0,00	-0,36	0,00	0,05
Nationals	0,36	0,36	-1,11	0,24	0,50	0,12	-0,42	0,60	-3,53	0,39	-0,15
Non-nationals	0,92	0,02	-0,42	0,01	0,07	0,00	0,01	0,01	-0,29	0,01	0,04
EEA+	0,13	0,77	-1,64	0,22	0,49	0,10	-0,41	0,33	-4,20	0,09	-0,31
Europe- EEA+	0,87	0,00	-0,02	0,01	-0,05	0,05	0,33	0,05	2,25	0,02	-0,15
Non-Europe	0,82	0,01	-0,29	0,01	0,08	0,02	-0,18	0,02	-1,56	0,02	0,15
Africa North	0,17	0,04	-0,63	0,00	-0,03	0,43	-0,67	0,52	-7,36	0,32	0,56
EU-countries:											
Belgium	0,45	0,15	-0,71	0,43	0,67	0,09	-0,38	0,12	-2,51	0,09	-0,31
Germany	0,51	0,36	-1,12	0,06	0,24	0,01	-0,06	0,08	-1,99	0,08	-0,28
France	0,04	0,54	-1,38	0,18	0,45	0,54	-0,93	0,71	-6,15	0,00	-0,04
Ireland	0,08	0,61	-1,46	0,17	0,43	0,00	-0,05	0,10	-2,30	0,50	-0,52
Italy	0,07	0,29	-1,01	0,18	0,44	0,42	-0,82	0,55	-5,42	0,00	-0,01
Portugal	0,16	0,50	-1,30	0,25	0,51	0,20	-0,55	0,35	-4,27	0,10	-0,32
United Kingdom	0,00	0,91	-1,77	0,26	0,52	0,11	-0,42	0,38	-4,46	0,07	-0,27
Other countries:											
Surinam	0,85	0,03	-0,51	0,00	0,04	0,03	0,24	0,01	1,21	0,00	0,02
Turkey	0,60	0,01	-0,37	0,00	0,09	0,17	-0,61	0,19	-4,69	0,10	0,34
Morocco	0,72	0,02	-0,42	0,00	-0,03	0,14	-0,55	0,17	-4,38	0,12	0,37

The results in Table 7 reveal that the unemployment rate in general gives the best improvement over the reference model. For total immigration, non-nationals and the EEA+ countries the model fit with unemployment included is above 0.90, for nationals the total fit is 0.72. The best results including one economic variable for non-EEA+ and non-European nationalities are obtained with GDP, either measured in relative terms, absolute terms or in annual deviations. For all EU nationalities, except Belgium, the model including unemployment is better than models with any of the other economic variables. Immigration of Turkish or Moroccan nationality is better described with annual variation in GDP.

The effect of the annual variation in compensation per worker is, although of the right sign, modest. The results for the GDP variables is mixed. The coefficients of these variables should be positive, but in fact in most models the estimated coefficient is negative. Only in a number of nationalities a model including GDP is better than a model with unemployment.

Unemployment seems to be the best performing economic indicator for immigration in the short run as well. For EU countries, an indicator of unemployment in the origin country is available as well and can be included in the analysis in order to assess the possible influence of unemployment as a *push* factor. The results are given in *Table 8.*

Table 8. Model for immigration into the Netherlands in the period 1985-1995 by citizenship from EU-countries using unemployment in the Netherlands (UNEMP_nl) and unemployment in the country of citizenship (UNEMP_origin)

Citizenship	R^2	Change in R^{2**}	Standardized coefficient:	
			UNEMP_nl	UNEMP_origin
Belgium	0.60	0.15	-0.49	-0.16
Germany	0.93	0.06	-1.52	0.35
France	0.63	0.05	-1.00	-0.35
Ireland	0.79	0.10	-1.53	0.52
Italy	0.38	0.02	-1.53	0.31
Portugal	0.68	0.02	-0.89	-0.31
UK	0.91	0.00	-1.80	0.07

* Time series available for North African countries 1985-1993.
** Relative to the model with only UNEMP_nl

From these analyses a number of observations may be made. In all other cases, the R^2 of the extended model is almost the same as the simpler model, and often the sign of one or more variables is incorrect. Only for German, Irish, Italian and UK nationals the sign of unemployment in the home country is correct. But even in these models there is hardly any increase in explained variance. It may be concluded that unemployment is not a strong *push* factor for international migration. This confirms the results found in Van Solinge *et al.* (1997).

Conclusions short-term analysis. From these results a number of conclusions may be drawn. In general, we may conclude that the results from the short-term analysis using individual countries of citizenship confirms those of the long term analysis. Low unemployment is generally the most important economic *pull* factor for international migrants. This is especially so for nationalities from within the EU. In addition, a linear term is

necessary, but the sign of this variable varies across countries. In the models including unemployment the trend for EU-nationalities is downward; for non-EU countries the results are mixed. Unemployment as a *push* factor in the countries of citizenship is not important for generating international migration within the EU. Due to data limitations we could not test this result for non-EU countries.

2.2.5. Conclusions analysis of immigration and economic indicators for the Netherlands

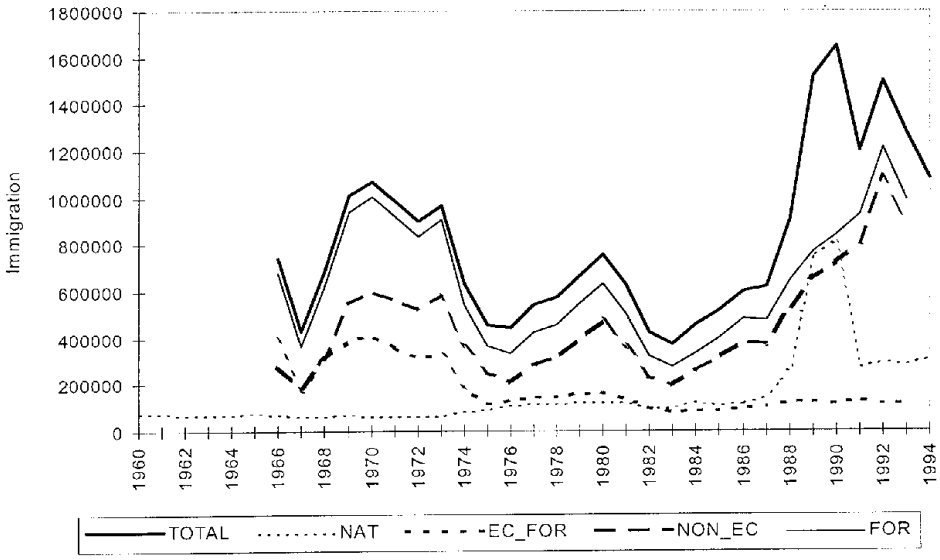
Putting the results of the long run and the short-term analyses together, we find some similarities between the results orf the short- and long-term analysis. In the long-term analysis, the current unemployment rate in the Netherlands turned out to be an important co-variate of immigration for all groups of immigrants, in addition to a linear trend and a small set of policy variables, that capture the sudden effects of implemented policies. These results carry over to the short run. In addition, in the short term models we were able to test the effect of unemployment in the country of citizenship as well, at least for a subset of countries. This variable is not important as a *push* factor for international migration within the EU. In the final section of this chapter we will compare the coefficient values of the short- and long term models of the Netherlands with the results found in other countries.

2.3 | Germany

2.3.1. Migration trends

Immigration into Germany is very much different from other European countries. First, the inflow into Germany is dominated by the phenomenon of 'Aussiedler'. These are ethnic Germans from other parts of Europe, mainly Poland, the countries of the former Soviet Union and Romania. This amounted to 400 thousand people in 1990, 223 thousand in 1994 and 134 thousand in 1997. Second, the separation between East and West-Germany since the Second World War created a flow of 'Übersiedler': immigrants form East-Germany to West-Germany. This flow ceased to exist in the international migration statistics after the reunification. (They can be traced in the internal migration statistics of Germany since then.) With respect to asylum Germany recognized until 1993 the right of foreigners to be granted asylum if they were in need of protection (Eurostat, 1994a). In other countries, according to international law, people are allowed to seek protection from persecution, but there is no right to be granted asylum on these grounds. In 1993 this law was altered, and asylum-applications from so-called 'safe countries' of origin are excluded, as well as people entering Germany from neighbouring countries (the so-called principle of first country of asylum). Despite these alterations, Germany receives by far the largest number of asylum-seekers in Europe, in absolute terms and in relative terms. In Chapter 6 more details will be given. *Figure 8* present time series of immigration into Germany by groups of nationalities since

Figure 8. Immigration into Germany by groups of nationalities 1966-1994



1966. In immigration a number of peaks is visible: in the period 1969-1973 immigration was substantially higher than in the 1960s and the period thereafter. Another peak in immigration occurred in 1980. By the end of the 1980s immigration rose to very high levels not observed previously: in 1991 the total immigration amounted to more than 1,5 million. This peak was mainly the result of Aussiedler returning to Germany in response to the reunification of Germany, as well as rising numbers of asylum-seekers, both from Europe and other regions in the World. The latter development caused the implementation of stricter immigration rules in Germany, in a similar way as occurred in the Netherlands, albeit somewhat earlier.

2.3.2. *Explanatory variables*

In order to estimate the influence of economic indicators on immigration, a set of variables, highly similar to that used in the Netherlands was available: the unemployment rate, the annual variation in real compensation per worker, the absolute level of GDP per head at current market prices as well as the relative level compared to the European average and the annual relative change in GPD. In addition, two policy variables were introduced: a UNIFICATION dummy variable, with values 0 for all years before 1989, and value 1 thereafter. Second, the POLICY variable with values 1 from 1994 on and 0 in previous years, was introduced to capture the effect of stricter immigration policies. Finally, a linear term was specified. The UNIFICATION dummy variable is not relevant for EU foreigners, and the POLICY variable does not apply to nationals and EU foreigners.

Similar to the case in the Netherlands there is a high degree of interdependence between some of the co-variates. High correlations can be found in the 1960-1995 time series between the absolute level of GDP, unemployment and the linear trend. The absolute level of GDP is highly correlated with the linear trend (0.95), UNIFICATION (0.83) and unemployment (0.91). There is also a high correlation between unemployment and the linear trend (0.92). Therefore, there is a potential multi-collinearity problem in the specification of the regression models.

2.3.3. *Long-term analysis*

Immigration figures for the long-term models were available for the period 1966-1993 and for the following groups of citizenship: total, nationals, non-nationals, EU12 foreigners, non-EU foreigners. We followed the same sequence of steps as in the analysis of the Netherlands: (a) a reference model including the linear trend and policy variables, (b) addition of one economic variable in turn, (c) selection of a best fitting model based on the results of the previous steps. We will discuss the results of (a) and (b) shortly, and present the results of the best fitting models for each group of citizenship.

Table 9 shows the model fits for the reference model and the models with one added economic variable, for immigrants broken down into five groups of citizenships. The results are mixed. First, we note that the results are different across groups of nationalities, and the level of the fit is generally lower than for the Netherlands. Second, single economic variables improve the model fit of the reference model, although the gain is not spectacular. The largest improvement over the reference model is the addition of compensation per worker to the reference model for non-nationals, which improves the model fit from 0.47 to 0.73. Third, there is not one economic variable that gives a superior result for all groups. Unemployment gives the highest R^2 for total immigration, but GDP_r gives the highest improvement for nationals and compensation for non-nationals, EU-foreigners and non_EU 12 foreigners. The sign of the estimated coefficients (not shown) reveals a similar variation in results. The coefficient for the linear trend is negative for all groups, except nationals. The variable UNIFICATION is positive in all models, as it should be.

Table 9. Model fit (R^2) of reference model and models including one economic variable for Germany in 1966-1993

Citizenship	Reference model	Reference model extended with one variable:			
		Unemp.	Comp.	GDP_r	GDP_a
Total	0.72	0.84	0.81	0.75	0.73
Nationals	0.65	0.67	0.66	0.85	0.84
Non-nationals	0.47	0.62	0.73	0.48	0.52
EU12 foreigners	0.68	0.73	0.81	0.68	0.69
Non-EU12 foreigners	0.63	0.75	0.80	0.65	0.67

The sign of the estimated coefficient of the unemployment variable is consistently -and in line with expectations- negative. Compensation is positive, except for nationals. The relative level of GDP is positive for total immigration, nationals and EU12 foreigners, but negative for the other two groups. The absolute level of GDP is negative for total immigration and nationals, but positive for the other groups.

Variants with these models were tried, where lagged values of the independent variable were used, but these results were clearly inferior compared to the contemporaneous case and not taken into account in the subsequent analyses.

In the next step, a combination of economic variables was included in the analysis. Some subjective decisions cannot be avoided here, since more than one set of explanatory

variables may give an acceptable model. Model fit, parsimony, and plausibility are important criteria for model selection here. *Table 10* shows the results of these analyses.

The results are surprising in that the optimal model for all models except nationals has a similar form and includes a linear trend, the UNIFICATION variable plus unemployment and compensation. The POLICY variable does not appear in these 'best' models. They do not improve the fit sufficiently to warrant the loss of one degree of freedom. All models have an R^2 between 0.80 and 0.90, which is lower than for the Netherlands, but still reasonable. Compared to the model without economic variables the im-provement in model fit is substantial: from 0.15 for EU 12 foreigners to 0.33 for non-nationals. In the model for nationals compensation is replaced by the relative level of GDP

Table 10. Goodness of fit and standardized coefficients of best models including economic variables for Germany in 1966-1993

Citizenship	R^2	Standardized coefficients				
		Linear trend	Unifi-cation	Unem-ployment	Compen-sation	GDP_r
Total	0.89	0.79	0.69	-0.80	0.28	-
Nationals	0.85	0.15	1.17	-	-	0.65
Non-nationals	0.80	0.73	0.51	-0.79	0.52	-
EU12 foreigners	0.83	-0.29	-	-0.46	0.35	-
Non-EU12 foreigners	0.86	0.98	0.51	-0.70	0.41	-

foreigners, which is plausible. The range of estimated coefficients for unemployment is -0.46 to -0.80 and for compensation 0.28 to 0.52. *Figures 9* and *10* show the model fit for nationals and non-nationals.

Immigration by sex Immigration by sex is available for Germany for the years 1960-1994. We estimated the model that includes the unemployment and compensation variables for total migration and both sexes.In addition, the POLICY variable capturing the effect of stricter immigration policy since 1994 was included. The results are given in *Table 11*.

The results are highly similar. The coefficients of unemployment for both sexes are more or less similar. The effect of compensation per worker is somewhat smaller for females than for males. The model fits almost identical. From this we infer that there are no major differences in the impact of economic variables on immigration according to sex.

Figure 9. *Observed and fitted immigration into Germany for nationals 1966-1993:* ***reference model plus compensation per worker***

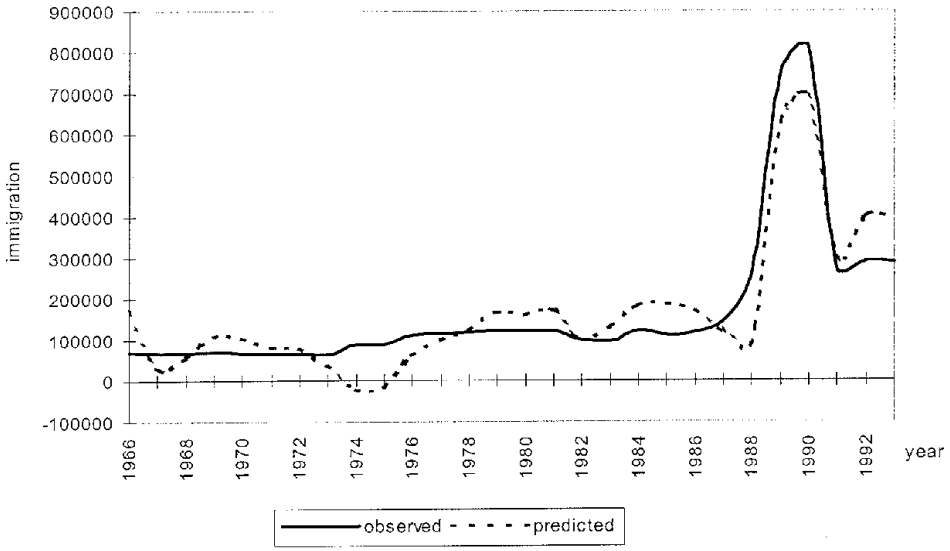


Figure 10. *Observed and fitted immigration into Germany for non-nationals 1966-1993:* ***reference model plus unemployment plus compensation per worker***

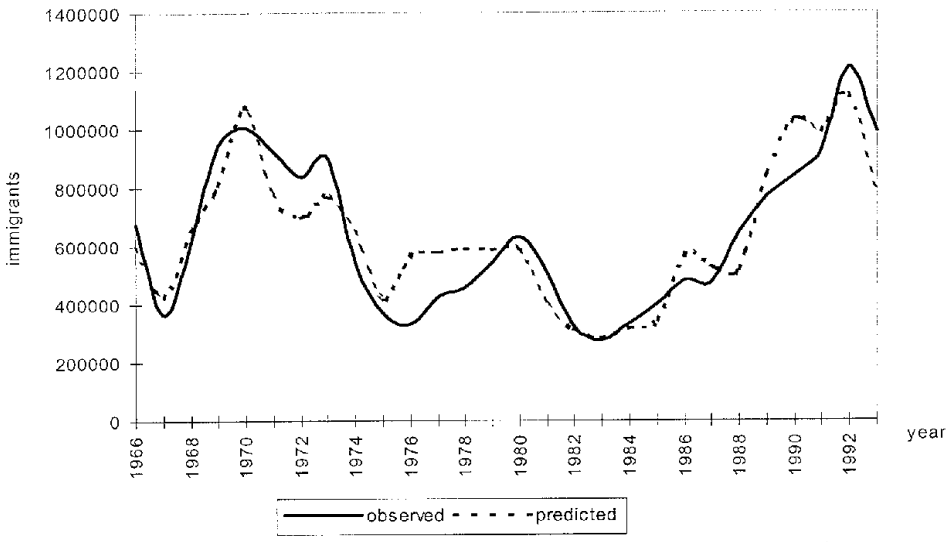


Table 11. Model fit (R^2) of final models including two policy variables and economic variables for Germany in 1960-1994 by sex

Citizenship	R^2	Standardized coefficients				
		Linear trend	Unifi-cation	Policy	Unem-ployment	Compen-sation
Total	0.89	0.77	0.82	-0.08	-0.77	0.43
Males	0.87	0.61	0.85	-0.05	-0.73	0.54
Females	0.88	0.95	0.72	-0.11	-0.75	0.24

Conclusions long-term analyses Germany. Economic indicators are predictors of immigration into Germany in the period 1966-1993. They explain 15 to 33 percent of the variation over time over and above a model that captures the most important policy effects and a linear trend. For Germany, both the unemployment rate and the annual variation in real compensation per worker do influence the size of the immigration flow over time except immigration of nationals. The coefficients of the economic variables are different for various groups of nationalities however: they vary in a range between one and two times the size of the coefficient. Compared to the results for the Netherlands we find that the effect of unemployment, as measured by the standardized coefficient, is slightly less and the effect of compensation is larger in Germany. In fact, in the Netherlands the latter variable does not add much to the explanation.

The model for nationals has a different form from all other models, which is in a way similar to the results found for the Netherlands.

Finally, the effect of economic determinants is more or less identical for males and females.

2.3.4. Short-term analysis

Immigration statistics according to a more detailed breakdown of countries of citizenship are available from 1985 onwards until 1995, apart from North Africa and Bulgaria, where time series are available only up to 1993. This implies that in principle -if applicable- two variables should be taken into account that capture effects of changes in the political and institutional climate: UNIFICATION and POLICY. As with the long term model UNIFICATION is not relevant for EU foreigners, and POLICY is also not relevant for EU foreigners and nationals. This leaves only 10-2=8 degrees of freedom for the estimation of the effect of other variables. (By definition the intercept is included, that reduces the total degrees of freedom from 11 to 10 in all models.) This limits the number of different specifications that can be estimated and evaluated substantially. We defined and estimated a reference model that includes an intercept, a linear trend, and two policy variables. In addition to this we estimated models that add a single economic variable to this reference model. *Table 12* gives the results of a large number of results (R^2 values) for these models, estimated for the most important (groups of) nationalities. Due to the high level of multi-collinearity between the linear term and the absolute level of GDP the latter variable is not included in the table. Despite this high level of multi-collinearity, replacing the linear term with GDP has a sizeable negative effect on the goodness-of-fit.

From *Table 12* we deduce that for the short-term, the unemployment variable generally gives the highest goodness-of-fit, when added to the reference model for individual nationalities. For groups of citizenship the results are mixed. Total immigration is better explained using relative levels of GDP, and the same is true for immigration of nationals. For these groups of citizenship an extended model with two economic variables: unemployment and relative GDP, appears to be the best choice. For nationals this is similar to the long-term model, for total immigration this is a slightly different result, since in the long-term model GDP is replaced by compensation. Immigration of non-nationals is better explained using compensation, and the same is true for immigration from Europe outside the EEA+, as well as from outside Europe in general.

Table 12. Regression models for immigration by (groups of) citizenship into Germany including one economic indicator variable, in the period 1985-1995. Goodness of fit and standardized coefficients.

Citizenship	R^2 reference model	Model results when added the following variable:					
		Unemployment		Compensation		GDP relative to EU	
		change	stand.	change	stand.	change	stand.
Total	0.85	0.05	-0.37	0.01	0.03	0.08	0.56
Nationals	0.59	0.09	-0.46	0.05	-0.06	0.24	0.82
Non-nationals	0.89	0.00	0.01	0.06	0.26	0.01	-0.13
EEA+	0.77	0.01	-0.12	0.00	-0.07	0.00	0.15
Europe - EEA+	0.89	0.00	0.05	0.04	0.18	0.00	-0.11
Non-Europe	0.69	0.01	-0.02	0.16	0.04	0.00	0.00
Africa North*	0.54	0.18	0.50	0.10	-0.32	0.04	-0.38
EU-countries:							
Greece	0.08	0.53	-0.82	0.01	-0.10	0.02	-0.22
France	0.90	0.07	-0.28	0.00	-0.01	0.00	0.02
Italy	0.06	0.07	0.29	0.02	-0.13	0.29	0.89
The Netherlands	0.97	0.00	-0.05	0.00	0.03	0.01	0.19
Austria	0.22	0.65	-0.92	0.01	-0.09	0.00	0.07
Portugal	0.79	0.09	0.33	0.00	0.07	0.04	0.32
United Kingdom	0.85	0.01	-0.14	0.08	0.20	0.07	-0.47
Other countries:							
Bulgaria*	0.81	0.06	0.28	0.06	0.28	0.02	-0.25
Poland	0.29	0.32	-0.92	0.03	-0.19	0.13	0.72
Romania	0.78	0.00	0.05	0.10	0.34	0.00	0.05
Turkey	0.46	0.41	-1.06	0.01	0.10	0.03	0.35

* Time series available for North African countries and Bulgaria: 1985-1993

For groups of nationalities, the results are mixed. The reference model, including a linear term and appropriate policy variables gives already a reasonable fit. For different groups of nationalities different results are found. For individual countries, in general unemployment gives the highest improvement over the reference model. These include especially Greece, France, Austria, Poland, and Turkey. Except for Austria these are the most important countries for guest workers in Germany.

Conclusions short-term analysis. The short-term analyses only partly reinforces the conclusions of the long-term analyses. Economic indicators have an impact upon immigration flows. However, the time series for the short term is too short to estimate the impact of economic indicators in a similar specification as in the long term. The results indicate that there are some discrepancies between the specification of the model for the short and the long term. For groups of nationalities, no specification comes out as generally best in the short term. For individual countries in the short term, unemployment is generally, but not always the strongest economic predictor.

2.3.5. General conclusions for Germany

Undoubtedly, the economic business cycle has a profound impact upon immigration of Germany. This is somewhat surprising, since immigration patterns over time have shown some peculiar trends in this country. Similar to the case for the Netherlands, these peaks have to be captured with special dummy variables. Controlling for these irregularities the impact of economic indicators is clear. Unemployment is, similar to the results for the Netherlands, a key indicator, although its effect varies between the short and the long term, and between nationalities. In addition, an income indicator, the yearly variation in compensation per worker, turned out to be important in the long term, but only incidentally in the short term. This casts doubt about the stability of the results over time. Moreover, the model coefficients are different across nationalities. Some immigrant groups are more triggered by economic motivations than others.

2.4 | Sweden

2.4.1. Migration trends

Immigration into Sweden is depicted in *Figures 11* and *12*. Unfortunately, no long-term figures exist for immigration by nationality. These are only available from 1985 onwards, and even then not complete up to 1995 (Figure 11). The longer time series shows a large peak in 1970, and smaller peaks around 1965 and 1976 (Figure 12). Since 1983 immigration is rising again, to reach a peak in 1989 and again and higher in 1994. This peak is to a large extent caused by asylum seekers, mainly form Yugoslavia. Due to this pattern, the immigration curve has is U-shaped, which is markedly different from that of the Netherlands or Germany.

2.4.2. Long-term analysis

Immigration by (groups of) citizenship is only available for Sweden since 1985. For the long-term (1961-1995, with missing figures for sex in 1992 and 1994), immigration figures are only broken down by sex and age. The period before 1968 is not taken into account because of data errors in the available files. The 1989 and 1994 are not really peaks occurring in a single year, but rising and falling trends over a number of years. Models were tried with and

without dummy variables capturing these peaks. The purpose of these dummy variables is not to increase the R^2 values of the models, because they do so by definition. Rather, they are included in order to aviod bias in the estimation of the effects of economic variables. For the long run the best results of the effects of the economic variables were found for models including these dummy variables

Figure 11. Immigration into Sweden 1985-1995 by groups of citizens

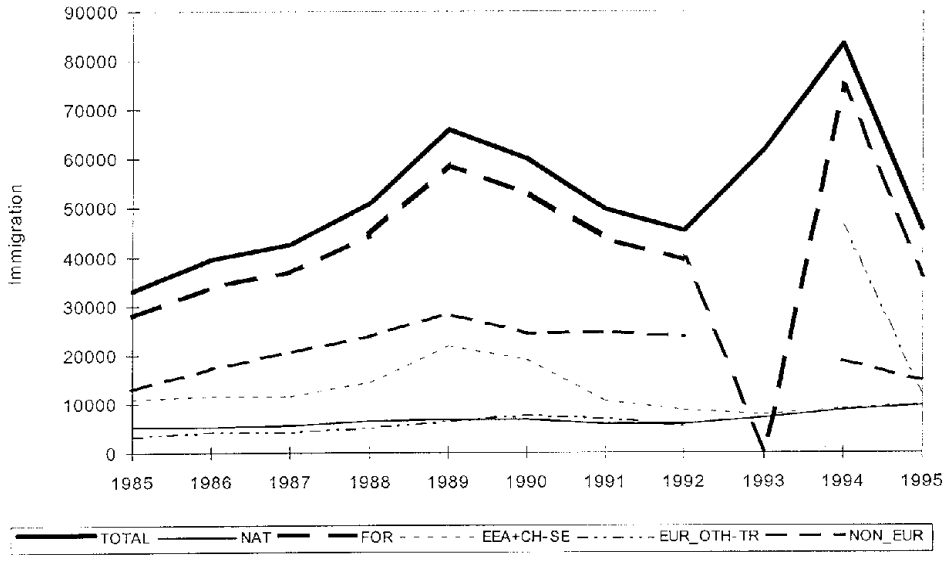
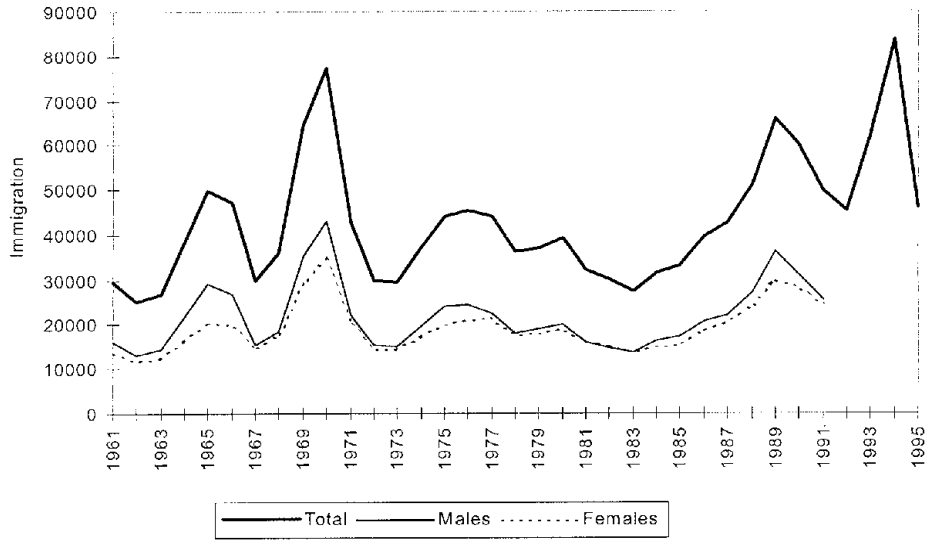


Figure 12. Immigration into Sweden 1961-1991 by sex



The reference model consists of the linear trend, and three dummy variable covering the peaks in 1969-1970, 1989-1990 and 1993-1994. The reference model has an R^2 of 0.79, and shows that the linear trend is positive but not very important. The model with only three dummy variables covering the sudden increases in migration performs almost as good, with an R^2 of 0.77. Therefore, the reference model could as well be specified with three dummy variables only. This solves the problem of multi-collinearity with the level of GDP as well, both relative and absolute (correlations -0.90 and 0.98 respectively). *Table 13* reports the results of the models for regression of total immigration into Sweden without linear trend. The results are not very convincing: the increase in explanatory power is very small or absent. The sign of unemployment and relative GDP is wrong and the improvement of the model when adding compensation per worker or the absolute level of GDP is very small.

When decomposed into sex or age, the results change slightly, because these time series have missing data after 1991 (sex) or 1993 (age). Therefore, the most recent immigration peak is not included in the analysis. These results show that unemployment is important in

Table 13. Model fit (R^2 and change in R^2) and standardized coefficients of reference model (without linear trend) and models including one economic variable for Sweden in 1968-1995

	Ref.	Reference model extended with one variable:							
		Unemployment		Compensation		GDP_r		GDP_a	
	R^2	change in R^2	stand. coeff.	change in R^2	stand. coeff.	change in R^2	stand. coeff.	change in R^2	stand. coeff.
Total	0.77	0.00	0.06	0.03	0.28	0.02	-0.19	0.03	0.23

the period 1968-1991 for total immigration and immigration by sex, but the relationship breaks down when analysed in the period 1968-1993. The reason for this is the combination of a steep increase in unemployment in the 1990s accompanied by a steep increase in immigration. Therefore, the expected negative relationship does not hold in all time periods in Sweden. The economic indicator compensation per worker gives a slighlty better result for immigration by age, but the increase in R^2 compared to the reference model is still small.

Conclusions long-term analysis. By far the most important variables related to immigration in the long-term in Sweden are captured by the reference model. These are non-economic in nature. Based on these results, an economic model for immigration for the long-term into Sweden makes no sense. In the next section we test whether this conclusion holds for the short-term as well, when broken down by nationality.

2.4.3. Short-term analysis

Immigration into Sweden can be broken down by nationality when analysed in the period 1985-1995. Figure 11 presents the time series for a number of groups of citizenship. Not all time series are complete however: 1993 is missing for Europeans from outside the EEA+, and non-Europeans. The two peaks in immigration are mainly caused by non-nationals, an more particularly Europeans from outside EEA+ countries.

Similar to the long run analysis, reference models were tried with and without the dummies for the peak years. However, the results of the effects of the economic variables do not

improve when these dummy variables are included: the signs of the coefficients are often wrong or the (standardized) value very low. Therefore, the reference model includes only a linear term. *Table 14* presents the results of the short-term analyses for groups of nationalities or single nationalities.

The results for groups of nationalities are strikingly different from the long-term results for total immigration. Total immigration in the period 1985-1995 is not very well explained by economic variables, which is in accordance with the long-term results. However, for a number of individual or groups of nationalities both within and outside Europe, unemployment and relative level of GDP turn out to be important indicators, and in a limited number of cases compensation turns out to be important. R^2s for models with one economic indicator are generally in the order of 0.6 to 0.8. The fact that total immigration does not reflect the same pattern is caused by the deviant pattern of the large group from other European nationalities (mainly former Yugoslavia). *Figure 13* shows that the fit for non-European nationalities is reasonable.

The short-term models were extended in several ways. First, combinations of economic variables were included. Second, the unemployment rate of the country of citizenship was used as an additional explanatory variable for those countries where figures were available (in particular Germany, Denmark, Finland, France, Greece, and the United Kingdom). The results of these analyses for countries where a model with more than one economic variable proved superior are reported in *Table 15*.

Figure 13. Immigration of non-European nationalities into Sweden

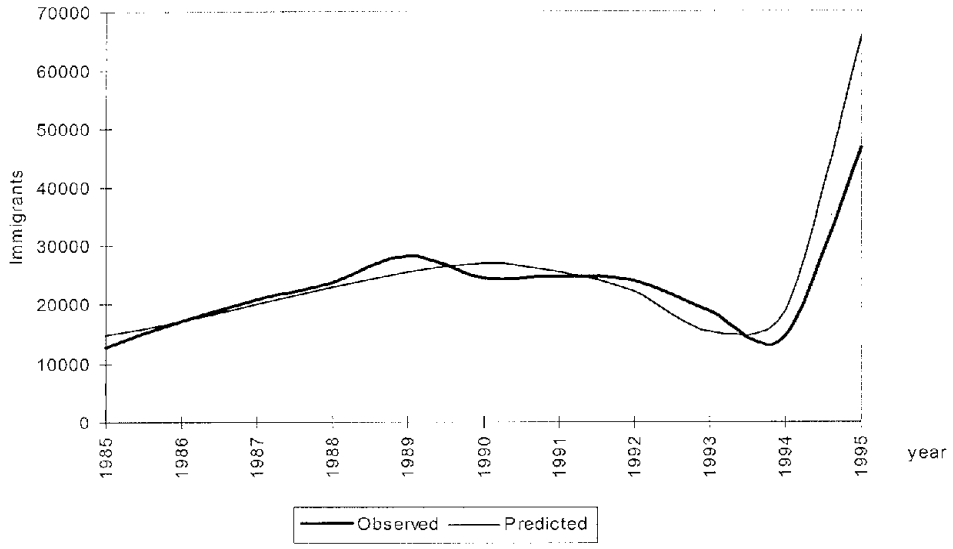


Table 14. Regression models for immigration by (groups of) citizenship into Sweden including one economic indicator variable, in the period 1985-1995

Citizenship	R^2 reference model	Model results when added the following variable:					
		Unemployment		Compensation		GDP relative to EU	
		change in R^2	stand. coeff.	change in R^2	stand. coeff.	change in R^2	stand. coeff.
Total	0.33	0.01	-0.19	0.09	0.33	0.00	-0.09
Nationals	0.63	0.01	0.17	0.08	0.29	0.17	1.36
Non-nationals	0.27	0.01	-0.22	0.09	0.32	0.00	-0.24
EEA+	0.11	0.49	-1.22	0.17	0.44	0.23	1.60
Europe - EEA+	0.29	0.24	0.75	0.04	0.20	0.10	-0.65
Non-Europe	0.02	0.75	-1.33	0.02	0.13	0.00	0.02
Africa North*	0.73	0.18	-0.57	0.00	0.01	0.00	-0.93
EU-countries:							
Germany	0.30	0.00	-0.06	0.07	0.27	0.47	2.28
Denmark	0.00	0.48	-1.20	0.19	0.46	0.19	1.45
Finland	0.75	0.03	-0.32	0.06	0.27	0.14	1.23
France	0.02	0.17	-0.71	0.02	-0.15	0.12	-1.16
Greece	0.48	0.19	-0.76	0.07	0.28	0.39	2.08
Norway	0.03	0.54	-1.27	0.15	0.40	0.14	1.21
United Kingdom	0.01	0.47	-1.19	0.02	-0.13	0.36	1.99
Other countries:							
Iraq	0.81	0.13	0.49	0.00	-0.10	0.13	1.11
Iran	0.44	0.24	-0.86	0.05	0.24	0.10	1.05
Poland	0.51	0.37	-1.04	0.01	0.06	0.01	0.26
Turkey	0.11	0.72	-1.47	0.00	-0.03	0.06	0.77

* Time series available for North African countries and Bulgaria: 1985-1993

The R^2 values are in general not very high. Moreover, the variable: unemployment in the country of citizenship was only relevant in the case of Denmark. In all other groups this variable was not important, or even had the wrong (negative) sign.

Table 15. Goodness of fit and standardized coefficients of extended models of immigration by selected (groups of) citizenship into Sweden 1985-1995

Citizenship	R^2	Standardized coefficients				
		Linear Trend	Unemployment		Compen-sation	GDP_r
			Sweden	Country of cit.ship		
Nationals	0.85	2.06	–	–	0.23	1.25
Denmark	0.50	0.67	-1.04	0.19	0.82	–
Norway	0.80	0.96	-1.25	–	0.38	–
United kingdom	0.61	1.58	-0.57	–	–	1.16

2.4.4. Conclusions for Sweden

The results of these analyses, both long-term and short-term are not very encouraging for efforts to include economic variables in projections of international migration. The results found are not very stable in time, and across groups of nationalities. There is no single specification that comes up as the logical description of the immigration process at the macro level. Although there are a number of associations involving particularly unemployment, and to a lesser degree compensation per worker and relative level of GDP, these relationships are not very robust in time and across groups. Finally, unemployment in the country of citizenship is not important as an explanation of migration.

2.5 | United Kingdom

2.5.1. Migration trends

The UK has no population or migration register. Data on immigration into the United Kingdom are obtained from the International Passenger Service IPS. The IPS conducts a survey among international migrants entering and leaving the UK. From this survey some estimates on size and age- and sex distributions, as well as origin and nationality can be derived. Because of the nature of these data, the short-term figures on immigration are rounded to the nearest thousands in the EUROSTAT database. This increases the uncertainty in the data, especially for the smaller groups of nationalities. Therefore, short-term analyses, covering the period 1985-1995, were only carried out for groups of nationalities. The long-term immigration figures (1964-1992) are not rounded to the nearest thousand. *Figures 14* and *15* present the time series of immigration both in the long run and in the short run. Total immigration into the UK has been relatively stable over time, centring around 200 thousand. In the period 1964-1981 a downward trend could be observed, albeit with yearly fluctuations. Since 1981 an increase in immigration can be observed, with peaks around 1986, 1991 and 1994. At present, total immigration is substantially above 200 thousand. The group non-nationals is somewhat larger than the group of nationals. Non-nationals are primarily from non-EU countries. The inflow of this group is increasing since 1992.

2.5.2. *Long-term analysis*

The economic variables are identical to those used in the other countries. The same procedure was used here as well. For the long-term, only five groups of nationalities are available. First a reference model was estimated including only a linear trend. No dummy variables were included in the reference model to account for sudden peaks. There are rather 'hills' than peaks. Next, a series of models with one economic variable were estimated. The results of these steps are reported in *Table 16.* Third, an optimal model was sought based on the previous results.

According to the results of the reference model immigration patterns do not follow a linear trend. The highest R^2 value is found for the EU12 foreigners. Addition of one economic variable results in a low to moderate increase of explanatory power of the models. There is no single economic indicator that gives a good fit to the observed immigration trend. Based on these results models were estimated involving more than one indicator. The inclusion of the linear trend in these models was also tested. The results are given in *Table 17* below, where the best models are presented in terms of R^2, and standardized coefficients. The explanatory power of this model ranges from 0.41 for nationals to 0.72 for EU and non-EU foreigners.

The analyses by age and sex do not reveal important new insights. For this analysis the time period 1975-1993 was available. No important differences between males and females were found, except for the difference in model fit: and R^2 of 0.42 for men versus 0.61 for women. When estimated separately for age groups the highest fit of the economic regression modes was found for the age category 25-39, and the elderly (60+).

Conclusions long-term analysis. In general, unemployment alone or in combination with one or more other variables is needed to describe the time trend in immigration. The fit between observations and estimated immigration is modest to reasonable. The results for the Netherlands and Germany were better, but in these countries policy variables were necessary in order to capture sudden changes observed in the time series. In the UK no dummy variables were used.

2.5.3. *Short-term analysis*

For the short-term 1985-1995 nationality is available in groups that are slightly different from the long-term: total, nationals, non-nationals, EEA+, Europe minus (EEA+ and Turkey), non-Europeans, and North Africans (1985-1993). We estimated models including one economic variable. We experimented with models with and without a linear trend term. This term turned out to be not important at all, so we present here only the models with one economic variable. The results are reported in *Table 18.*

Again, there is no uniform specification where one variable stands out as the optimal economic indicator. In cases where the R^2 value is very low for unemployment, the sign of the variable is wrong. The relative level of GDP has a negative sign for almost all groups of nationalities. R^2 values are generally low. Combining several variables in one model does not improve the model fit to a large extent, unless one is willing to accept wrong signs of variables. The variable GDP_r, in combination with other variables, has a negative sign, but removing it from the specification results in a much lower explanatory value of the model. Therefore, the single explanatory variable models reported above cannot be improved

without problems of interpretation.

Conclusions short-term analysis. The short-term model results imply that in four out of seven models unemployment is the most appropriate economic indicator variable: total, non-nationals, EEA+ and non-Europeans. Only for immigration of non-Europeans this results in an acceptable fit (0.71). In all other cases the R^2 value is relatively low.

Figure 14. Immigration to the UK by groups of nationalities 1964-1992

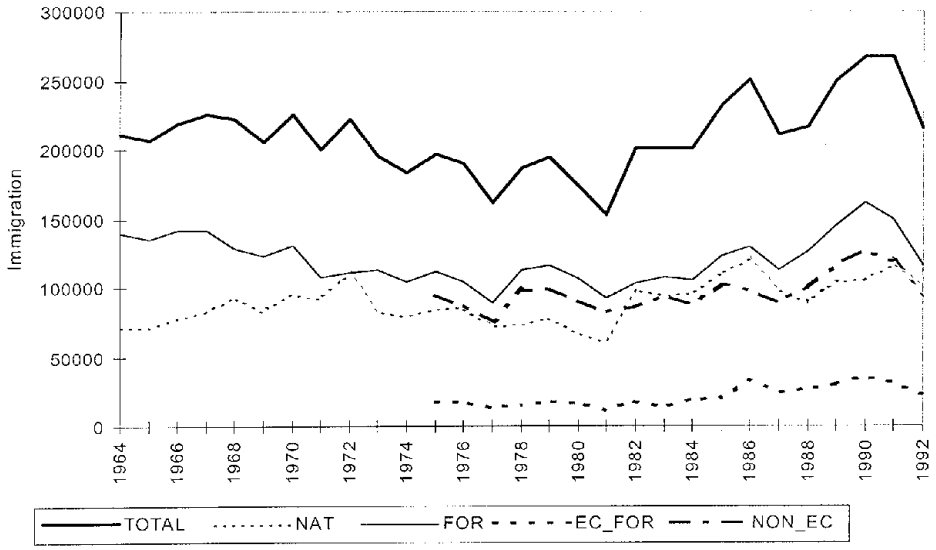


Figure 15. Immigration to the UK by groups of nationalities 1985-1995

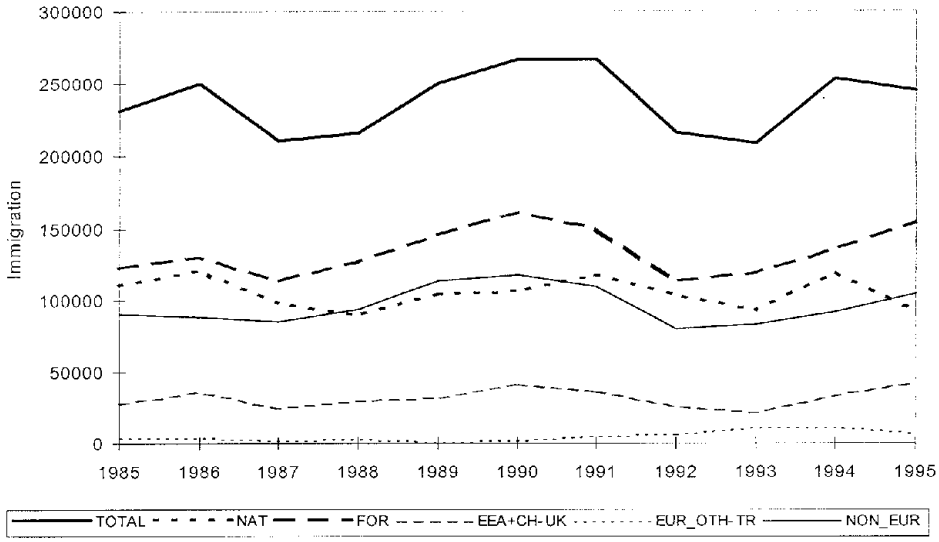


Table 16. Model fit (R^2 and change in R^2) and standardized coefficients of reference model and models including one economic variable for United Kingdom in 1964-1995 (EU12 foreigners and non_EU: 1975-1992)

	Ref.	Reference model extended with one variable:							
		Unemployment		Compensation		GDP_r		GDP_a	
	R^2	change in R^2	stand. coeff.	change in R^2	stand. coeff	change in R^2	stand. coeff	change in R^2	stand. coeff
Total	0.15	0.05	-0.42	0.10	0.32	0.31	0.83	0.27	2.23
Nationals	0.30	0.01	0.19	0.08	0.30	0.34	0.29	0.04	0.78
Non-nationals	0.02	0.16	-0.81	0.05	0.24	0.48	1.03	0.40	2.76
EU12-for.	0.55	0.08	-0.37	0.04	0.19	0.12	0.35	0.03	-1.16
Non-EU-foreigners	0.39	0.23	-0.62	0.11	0.34	0.03	0.18	0.01	0.59

Table 17. Goodness of fit and standardized coefficients of models including a multiple of economic variables by selected groups of citizenship into the United Kingdom 1985-1995

Citizenship	R^2	Standardized coefficients				
		Linear trend	Unemploy-ment	Compen-sation	GDP_r	GDP_a
Total	0.60	–	-0.45	0.27	0.45	1.24
Nationals	0.41	–		0.29	–	0.66
Non-nationals	0.69	–	-0.87	–	0.64	1.41
EU foreigners	0.72	0.88	-0.28	–	0.30	–
Non_EU foreigners	0.72	0.98	-0.60	0.31	–	–

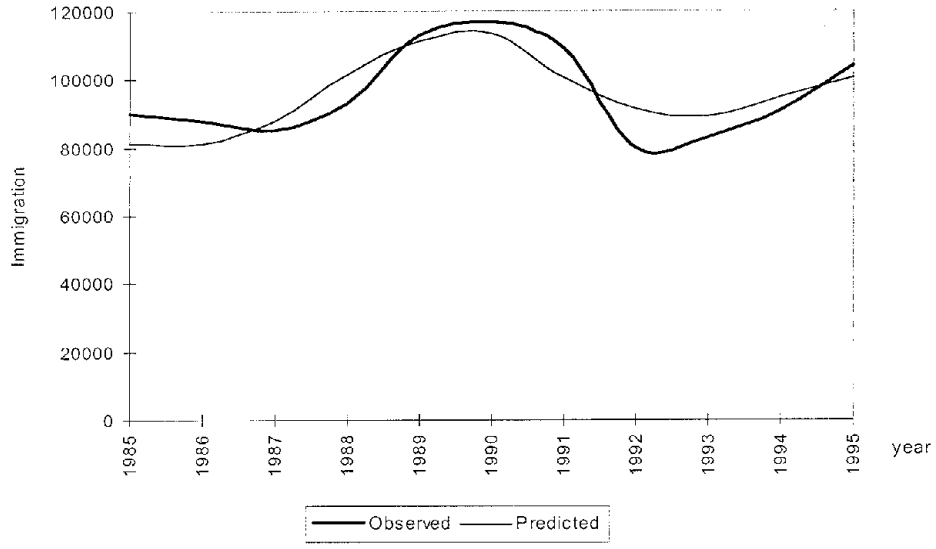
2.5.4. *Conclusions United Kingdom*

The analysis shows that there are relationships between economic indicators and immigration into the United Kingdom over time. The predictive power of these indicators is modest at best, however. Unemployment turns out to be the most important indicator, and in the case of immigration from outside Europe this single variable gives a reasonable description of the observed time trend. *Figure 16* presents the observed and predicted time series of this model in the period 1985-1995.

Table 18. Model fit (R^2) and standardized coefficients of models including one economic variable for United Kingdom in 1985-1995

	Regression models with one economic variable:							
	Unemployment		Compensation		GDP_r		GDP_a	
	R^2	stand. coeff.	R^2	stand. coeff	R^2	stand. coeff	R^2	stand. coeff
Total	**0.24**	**-0.49**	0.02	0.12	0.10	-0.32	0.06	0.25
Nationals	0.04	0.20	0.04	0.20	0.03	-0.17	0.02	-0.14
Non-nationals	**0.56**	**-0.75**	0.00	0.03	0.10	-0.31	0.17	0.42
EEA+	**0.28**	**-0.53**	0.00	0.07	0.11	-0.34	0.05	0.23
Europe-EEA+	0.09	0.30	0.46	-0.68	0.39	-0.62	**0.32**	**0.56**
Non-Europe	**0.71**	**-0.84**	0.03	0.17	0.01	-0.08	0.10	0.31
North Africa	0.03	0.18	0.03	0.18	**0.34**	**0.59**	0.13	-0.36

Figure 16. Observed and predicted immigration from outside Europe into the United Kingdom



2.6 | A comparison of estimated unemployment coefficients across countries, (groups of) citizenship and time

In the previous section we estimated the impact of economic indicators on immigration of various nationalities into four countries of the European Union: the Netherlands, Germany, Sweden, and the United Kingdom, using a short as well as a long time series. Unemployment turned out to be the single most important variable in the Netherlands and the United Kingdom. In Germany unemployment and compensation per worker proved to give the best predictive results. In Sweden no effect of economic variables could be detected. In this section we will focus on the results of the single most important economic variable, unemployment and see if the results across countries and citizenships have some elements in common. We will do this by calculating and comparing *elasticities* of unemployment, which gives the relative effect of a one percent increase of unemployment on immigration. Since unemployment is already measured in terms of percentage unemployment, we calculate elasticities that give the relative effect of a change of one percent point unemployment (for instance, from 4 to 5 per cent increase) upon immigration. An elasticity of -4 means that if unemployment increases with 1 per cent point, immigration will decrease with 4 per cent. Note that this definition of elasticity differs from the definition used by economists, since it is based on percentage points change instead of percentages. However, there is a one-to-one correspondence between both definitions, and the definition chosen here has a simple interpretation in the measurement unit of the unemployment variable.

Table 19 gives the estimated elasticities for immigrants by (groups of) citizenships into the four countries based on time series regressions for both the short and the long term. The majority of the elasticities is in the range of -2 to -6. There is little correspondence between the short and the long term results. The short term results are generally higher and show more variation than the long term results. In a number of cases the estimated elasticity exceeds -20 and this is clearly too high for a valid answer. There is no clear structure in the results that explains where these outliers occur. The variation in the results for the short term is very large and it is difficult to make any definite conclusions from these results. Tentatively one might say that the larger the economic difference between sending and receiving country, the larger the elasticity. However, there a important exceptions to this rule. The differences in the results between EU foreigners and non-EU foreigners is ambiguous. Only in the Netherlands there is a difference in results in the long term: here the elasticity of non-EU foreigners is -5.6, versus -1.9 for EU foreigners. The variation in the short term results is too large to make conclusions regarding the difference between EU and non-EU countries.

Based on the long term results, and disregarding the outliers a best guess would be an elasticity of -4 for the Netherlands and for Germany (although here the variation is larger) and -2 for the UK. However, these results cannot be substantiated with short term results, since the uncertainty is too large.

Table 19 *Estimated immigration elasticities of unemployment rate**

	NL	D	UK	S
long term				
total	-5,2	-14,4	-1,6	-
nationals	-1,6	-	-	-
non-nationals	-24,6	-38,6	-3,5	-
eu 12 foreigners	-1,9	-4,1	-3,4	-
non-eu12 foreigners	-5,6	-3,9	-2,9	-
short term				
total	-4,20	-13,7	x	-1,5
nationals	-6,0	-	x	-
non-nationals	-4,8	-2,6	x	-1,9
eea+	-14,6	-1,5	x	-13,2
non-eea+	-3,3	-3,1	x	-9,1
North-Africa	-7,0	-	x	-7,9
EU countries				
Belgium	-4,7	-	x	-
Germany	-14,2	x	x	-0,4
France	-8,8	-3,1	x	-5,4
Ireland	-24,6	x	x	x
Italy	-6,1	-	x	x
Greece	x	-25,1	x	-6,9
Netherlands	x	-0,6	x	x
Portugal	-24,9	-	x	x
United Kingdom	-21,2	-1,8	x	-4,7
Denmark	x	x	x	-29,0
Austria	x	-8,9	x	x
Finland	x	x	x	-2,6
Non-EU countries				
Surinam	-12,9	x	x	x
Turkey	-7,1	-14,7	x	-9,4
Morocco	-7,8	x	x	x
Bulgaria	x	35,7	x	x
Poland	x	-35,8	x	-7,7
Romania	x	-	x	x
Iraq	x	-	x	x
Iran	x	-	x	-14,6

x = not estimated/not available
- = estimated but of the wrong sign or approximately zero

2.7 | The analysis of net migration trends

As stated in the introduction, for many countries no detailed migration statistics are available (for an overview of the data present in the Eurostat database, see Chapter 7). In these cases, an indirect method may sometimes be used to infer net migration totals from population figures in com-bination with fertility and mortality. If these statistics can be calculated, or estimated with a sufficient level of precision, the question to be answered in the framework of this report is whether net migration time series can be explained by economic indicators. Although in prin-ciple net migration statistics may be calculated for each nationality if vital statistics are available by nationality, the typical situation in many countries where we have to rely on net migration data is that such detailed statistics are not collected. Here, we will only look at total net migration time series. A principal advantage of net migration time series is that they are generally available for a substantial period of time. For the countries chosen here we use the period 1961-1995.

Net migration is of course closely related to immigration. For most European countries emigration of nationals is a relatively time invariant process at moderate levels. Emigration of non-nationals is closely related to the size of the non-national population, and hence, of the cumulative effect of previous immigration trends. Trends in emigration rates, in turn, are possibly affected, to a certain extent, by the same economic circumstances as those relevant for immigration. On the other hand, the individual decision to migrate, which lies at the micro level behind the macro emigration figures, is also motivated by other reasons, or hampered by various constraints. Economic underdevelopment may also act as an (income or otherwise) constraint for migration (see e.g. Van Solinge *et al.*, 1998, chapter 5, for recent evidence in Europe). Since net migration is the combination of immigration and emigration, it is in principle a more complicated phenomenon than immigration.

Despite this increased complexity, we will look at the same types of models as before, with one ore more economic variables added to a reference model. We will first use the same four countries as before in order to compare the results of net migration with immigration. In addition, net migration of Portugal will be analysed as well. Portugal is a typical country for which no gross migration data are available for longer time series.

2.7.1. The Netherlands

After the second World War and in the 1950s, many nationals left the country for Canada, Australia or New Zealand. The 1960s marked the end of this emigration trend. Until the end of the 1960s the net migration figure was close to zero. In the 1970s net migration rose to levels between 20 and 40 thousand, with peaks, already discussed before, in 1975 and 1979/80. In the beginning of the 1980s net migration dropped to zero, but increased again until 1991. Since 1991 the net migration figure is declining.

We estimated OLS regression models using the same explanatory variables as in the long-term analysis reported above. *Table 20* presents the results of models with one economic variable added to the reference model with the two policy variables SURINAM and POLICY defined previously in the analysis of immigration, as well as a model with all three economic variables.

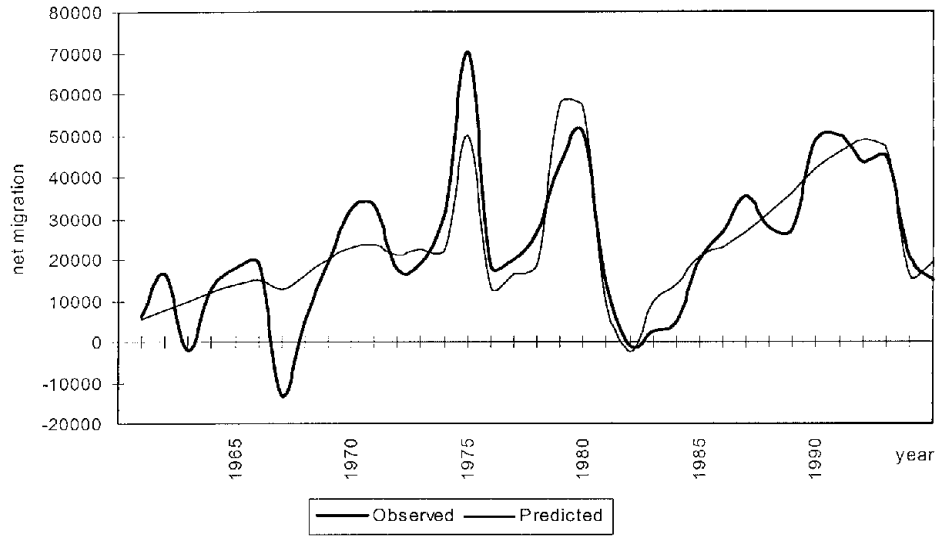
All variables have the right sign. The linear trend variable has a high standardized coefficient value, indicating that the autonomous trend is important in the Netherlands. In addition, the

policy variables are important variables capturing the sudden peaks in the research period, in a way similar to the models for immigration. Of the three economic variables (the absolute level of GDP suffers from collinearity with the linear trend; it was tried as an alternative to the linear trend, but this resulted in a much worse fit and therefore this variable was not taken into account further) unemployment gives the highest fit when used as a single indicator. An R^2 of 0.75 is a substantial improvement over the reference model . When tried simultaneously, the three economic variables are hardly able to increase the R^2 of unemployment alone. *Figure 17* shows the observed and predicted time trend of net migration due to model 1 of Table 20. The fit is reasonably good. The three peaks are modelled by the two policy dummies, but the structural trends are captured by the unemployment variable. The sudden dips in net migration in the 1960s, especially in 1968, are not described by the model.

Table 20. Goodness of fit and standardized coefficients of models of net total migration in the Netherlands 1961-1995

Model	R^2	Linear trend	POLICY	Standardized coefficients			
				SURINAM	Unem-ployment	Compen-sation	GDP_r
Ref.	0.51	0.49	-0.24	0.53	–	–	–
1	0.75	1.27	-0.40	0.61	-0.88	–	–
2	0.67	1.05	-0.32	0.66	–	0.67	–
3	0.59	0.96	-0.41	0.47		–	0.52
4	0.78	1.47	-0.48	0.59	-0.72	0.14	0.26

Figure 17. Net migration in the Netherlands



2.7.2. Germany

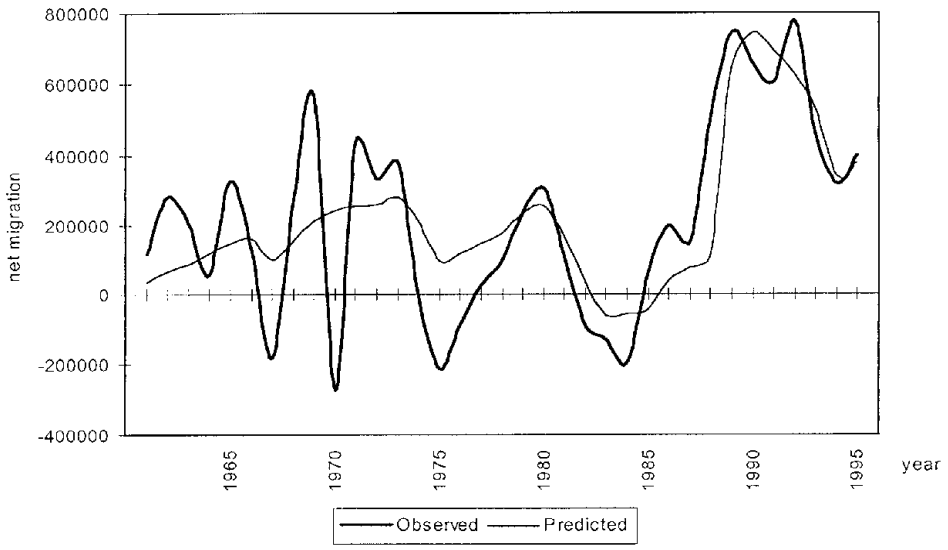
Net migration of Germany shows a very unstable pattern, especially in the 1960s and early 1970s, where large positive values are followed by large negative values in very short time periods. Although Germany is predominantly a net immigration country, there have been years where emigration exceeded immigration as well. The last period of this kind occurred in the first half of the 1980s. Since then, immigration by far exceeds emigration. We estimated models involving one economic variable and a model involving three economic variables. The absolute level of GDP was left out of these analyses for the same reason as in the Netherlands: the high degree of multi-collinearity with the linear trend, but with a much worse fit than the linear trend. *Table 21* gives the main results of these regressions.

Again, the unemployment model 1 performs better than the other models, having an R^2 of 0.56. The three economic variables jointly used as regressors results in a slightly higher R^2.

Table 21. Goodness of fit and standardized coefficients of models of net total migration in Germany 1961-1995

Model	R^2	Linear trend	Unifica-tion	Standardized coefficients			
				POLICY	Unem-ployment	Compen-sation	GDP_r
Ref.	0.47	-0.12	0.85	-0.24	–	–	–
1	0.56	0.78	0.69	-0.90	-0.90	–	–
2	0.48	0.00	0.80	0.15	–	0.15	–
3	0.48	-0.05	0.95	0.20	–	–	0.20
4	0.60	1.00	0.81	0.31	-0.95	0.07	0.31

Figure 18. Net migration into Germany



Although the signs of all variables are correct, the model having unemployment as the only economic indicator is the best choice. *Figure 18* shows the observed and predicted time trend for total net migration of Germany by model 1 in Table 21. The structural development is reasonably well captured by unemployment in addition to the reference model. The large yearly fluctuations in the 1960s are not taken up by the model however.

2.7.3. Sweden

The poor results obtained in explaining the time trend in immigration in Sweden is repeated for net migration. The explanatory power of a model with all annual variation in compensation per worker is the highest of all single variable models for Sweden, but only 0.23. If more than one economic variables is included this value increases to only 0.24. Therefore we have to conclude that net migration in Sweden is not explained by economic indicators.

2.7.4. United Kingdom

Net migration in the United Kingdom follows a U-shape pattern in the period 1961-1995. In the first half of the 1960s the UK experienced a high net immigration, which dropped suddenly to net emigration in 1964. It remained negative until 1983, with one positive exception in 1978/79. Since 1983 it is positive again and the structural trend since then is rising. Since the pattern is U-shaped, a reference model with a linear trend makes no sense. Similar to the models for immigration, no policy variables were included in the analysis as well.

Table 22 shows the main results of the estimation of models with one economic variable and a model with three economic variables as well. Here, the absolute level of GDP (GDP_a) was included as well, despite the multi-collinearity problem with the linear trend variable, since there was no a priori reason to include the linear trend. In the final models, the linear trend was included however.

Table 22. *Goodness of fit and standardized coefficients of models of net total migration in the United Kingdom 1961-1995*

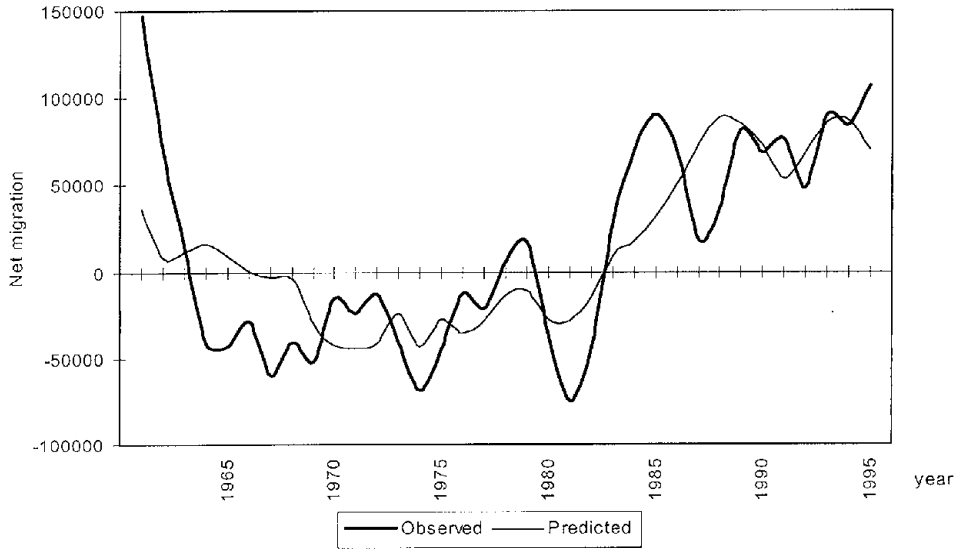
Model	R^2	Standardized coefficients				
		Linear trend	Unemployment	Compensation	GDP_r	GDP_a
1	0.3	0.24	0.27	–		
2	0.2	0.48	–	-0.01		
3	0.6	1.28	–	–	0.99	
4	0.5	-1.40	–	–	–	1.96
5	0.6	0.56	0.17	-0.02	0.81	0.44

Table 22 reveals that a model with a linear trend and relative level of GDP gives the best fit to the observed time trend. The model with all economic variables performs hardly better, and has counterintuitive coefficient values for unemployment and compensation.

Figure 19 presents the observed and predicted time series of net migration for the UK in the period 1961-1995, with predictions according to the specification of model 3 of Table 22. The structural U-shaped pattern is reasonably well reproduced by this model, although the very high values in the early 1960s are not captured very well. Moreover, the large fluctuations in the 1980s are not covered as well.

These results do not match with the results of the analysis of immigration. There, a mix of variables gave the best fit to total immigration (R^2 equal to 0.60) and models with a single indicator performed much worse. The relative level of GDP did not turn out to be the single predictor for immigration, but it does for net migration in the UK.

Figure 19. Observed and predicted net migration for the United Kingdom



2.7.5. Portugal

For Portugal, no annual data on migration are available, like in the previous countries. Therefore, we relied on indirect estimation of net migration. Based on these net migration figures (*Figure 20*) it can be observed that Portugal was a net emigration country up to 1974. In 1974 Angola, the former colony of Portugal, became independent after a war for independence. In the turmoil and chaos following this event, the 'Carnation Revolution' broke out in Portugal, which marked the end to the fascist regime of Ceatano and started an era of democracy and modernization. As a result of these events, many immigrants flew from Angola to Portugal in 1974 and 1975. After 1975 net migration was positive until the early 1980s, then decreased until 1990, after which it rose to levels slightly above zero in 1995. In 1985 Portugal joined the European Union, together with Spain. In the net migration pattern, no direct evidence of this event is visible. In chapter 5 we will analyse the consequences of this development in more detail.

More detailed migration statistics by nationality are available for Portugal since 1992. However, this time series is too short for modelling purposes. The most important immigration category is from non-European nationality, and mainly from Southern Africa (Angola and

Mozambique). However, the immigration flow decreased drastically since 1992.

The net migration time series was analysed in the same framework as used in the other countries. We used identical economic indicators. The reference model consists of a linear term and a dummy variable, called REVOL, with values 1 for 1974/75, and 0 otherwise. *Table 23* gives the results of the estimation of a series of models.

The reference model describes the historical trend reasonably well. Adding unemployment improves the fit, but the sign of the coefficient is wrong. Compensation nor relative level of GDP does not add anything to this model. The model with three economic indicators performs hardly better than the model including only unemployment. Even so, we are left with a model where unemployment is relevant, but not in the expected manner. If unemployment goes up, net migration goes up as well, and *vice versa.*

Figure 20. Net migration figures for Portugal

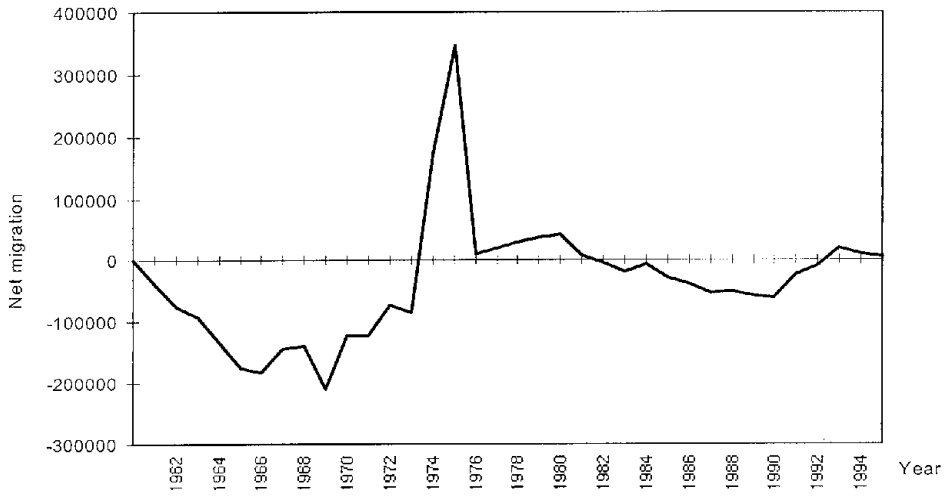


Table 23. Goodness of fit and standardized coefficients of models of net total migration in Portugal 1961-1995

Model	R^2	Standardized coefficients				
		Linear trend	REVOL	Unem-ployment	Compen-sation	GDP_r
Ref.	0.7	0.42	0.76	–	–	–
1	0.8	0.11	0.83	0.47	–	–
2	0.7	0.36	0.84	–	-0.19	–
3	0.7	0.53	0.78	–	–	-0.12
4	0.8	-0.22	0.80	0.55	0.01	0.31

This on first sight strange result may be explained by the special position of Portugal. Portugal has a special position within the European migration system. In the 1960s and

1970s, as a consequence of its relative underdevelopment, it was a supplier of cheap labour for western European countries. In this period, emigration exceeded immigration. At the same time, due to its special (post)colonial relation with Southern Africa, Portugal received traditionally many immigrants from Angola and Mozambique. Therefore, both emigration and immigration have always been important, but the nature of these flows is different. As stated before, emigration, the generation of migration, is not necessarily easily explained with reference to the economic situation in the country of residence. Immigration on the other hand, has to do with the distribution of migrants over possible destinations. Here, the link with economic indicators is, according to theory, more clear (Van Solinge *et al.*, 1998).

In order to get more grip on the emigration flow underlying the net migration time series, we estimated the model with unemployment **and** unemployment in one of the largest destination countries for Portugese emigrants, Germany, as a proxy for economic opportunities abroad. The coefficient had the correct sign, but a very large standard deviation, whereas the improvement in R^2 was negligible. We have to conclude, based on these results, that economic indicators do not contain information for improving net migration projections in Portugal.

2.7.6. Conclusions net migration

Compared to the models for immigration, the results for net migration are generally less convincing. R^2 values are lower, and, although unemployment is generally the most important economic predictor, no single model stands out. In the case of Sweden and Portugal no evidence of economic impacts upon net migration was found.

2.8 | General conclusions of the impact of economic indicators upon migration

In this chapter we have analysed time trends of immigration and net migration, and tried to establish robust relationships over time between economic indicators and migration. The results show that these relationships do exist, but with a number of qualifications. These qualifications make it difficult to use economic information in a direct way in migration projections.

To start with, of the five countries used in the analysis, only in the Netherlands, Germany and the UK strong relationships were found. In Sweden only in the short term analyses some relationships were found. In Portugal no immigration statistics are available. Therefore, economic indicators are effective predictors in some countries, but not in others. Why this is the case is not clear from this analysis.

Secondly, but of prime importance, is the effect of policy variables in the models for the Netherlands, Germany, Sweden and Portugal. The larger shifts in immigration are the result of policy interventions and they have to be taken into account in order to isolate the effects of economic variables. Models without these variables will produce biassed results for economic variables.

A third qualification is the nature of the relationships found. Generally, unemployment turned out to be the key economic indicator in the Netherlands, the UK and Germany, but in a number of cases other variables, such as the relative level of GDP per capita, of compensation per worker, dropped in as well or instead. A uniform robust relationship across countries

is therefore not feasible. A best guess, based on the results of the long term models, is to use a generic elasticity estimate (percentage change in immigration due to a one per cent *point* change in unemployment of -4 for all immigration into the Netherlands and Germany, and -2 for immigration into the UK.

Fourth, the same applies to different nationalities in one country. Immigration groups differ in their sensibility for economic indicators. Nationals are generally, and quite understandably, not much affected by economic indicators, and the same is true for immigration from EU-countries. Tentatively, and in accordance with economic theory, one may conclude that the lower the degree of economic development in the origin country, the more susceptible one is for economic circumstances. However, even within groups of immigrants from developing countries, there are large variations in the impact of economic indicators.

Fifth, the effect of the linear trend turned out to be important in many cases. This variable captures every cause that develops linearly over time. In the next chapter we will replace this variable with a factor that has a clear interpretation.

3. Stocks and flows in international migration

3.1 The link between stocks and flows in migration

The labour migration from southern to western European countries that occurred in the 1960s and 1970s was followed, in the 1980s, by migrants with other motives. Many of these other motives were linked, either directly or indirectly, with network relations: the linkages between migrant populations in the country of destination with the population in the country of origin. These networks exist through family ties, or through membership of the same clan, neighbourhood, village or city. The existence of networks make the migration decision easier. Family or friends can be useful for housing, finding a job, and other social and economic support. In the migration literature this type of network support is described in the so-called *facilitating* hypothesis (Hugo, 1981). The existence of families or acquaintances is one of the leading factors of international migration (Esveldt *et al.*, 1995).

A second possible background of the relationship between networks and migration is the *tunnelling of information* between destination country and home country. Through family and relatives information is distributed among potential migrants in the home country which makes the decision to migrate easier.

Another mechanism that might be important in this respect is described in the *cumulative* hypothesis: the longer a migration flow persists between countries, the stronger the effect of the network ties. Successful migrants attract new migrants in this framework.

In a more general sense the presence of a population with the same language and cultural values in the country of destination may stimulate new migrants of the same origin country to settle in that country. Thus, economic reasons for migration are not the only trigger for international migration. At the macro level the size of the migrant population is therefore a predictor of the size of the migrant flow. This effect was for instance found in a cross-national study on migration flows within the European Union (Visser and Van Wissen, 1998).

In this chapter we will focus on the relationship at the macro level between the size of the migrant population and immigration. We will build upon the results found in the previous chapter on the relationship between economic indicators and immigration, and add the size of the migrant population to the analysis. In the analysis of the relation between economic indicators and immigration in many cases a linear trend variable was used in the reference model, in addition to one or more policy variables, to capture the sudden and often temporary effects of policies. We will add the size of the relevant migrant population to this reference model in order to estimate the effect of the stock on flows. The expected sign of this stock variable is positive of course. It remains open whether the effect of this variable is contemporaneous or lagged. However, it will be difficult to choose between both specifications, since the stock is often only slowly changing, and therefore the results will in general be almost identical.

The migration flows were distinguished according to nationality. In determining the size of the migrant stock the definition according to nationality is generally used as well, although a definition according to country of birth is also used frequently. In the definition according to nationality persons with a double nationality are not taken into account and this leaves out a substantial number of second generation immigrant children.

3.2 | Data on stocks of population by nationality

Changes in the size and composition of the non-national population(s) are the result of migration flows, birth, death, as well as naturalisations. Eurostat publishes statistics of the size of the population by nationality, as well as naturalisations, in principle since 1985. These time series are too short to take into account in an analysis of flows. Note that the analysis of the short time series of immigration had in general only a few degrees of freedom. In order to study the relationship between stocks and flows a somewhat longer time series is needed. For longer time series we used OECD data (OECD, 1997). These OECD data are partly derived from Eurostat, and partly from national governments. The original time series are derived from surveys (in the EU countries: France, Ireland, Portugal, Spain and the United Kingdom) or population registers (all other countries in the EU). However, these data give only information on the total non-national population in the country. This information is gathered in the variable STOCK in the analyses below. No breakdown by nationality is possible. The analysis can therefore be only very limited.

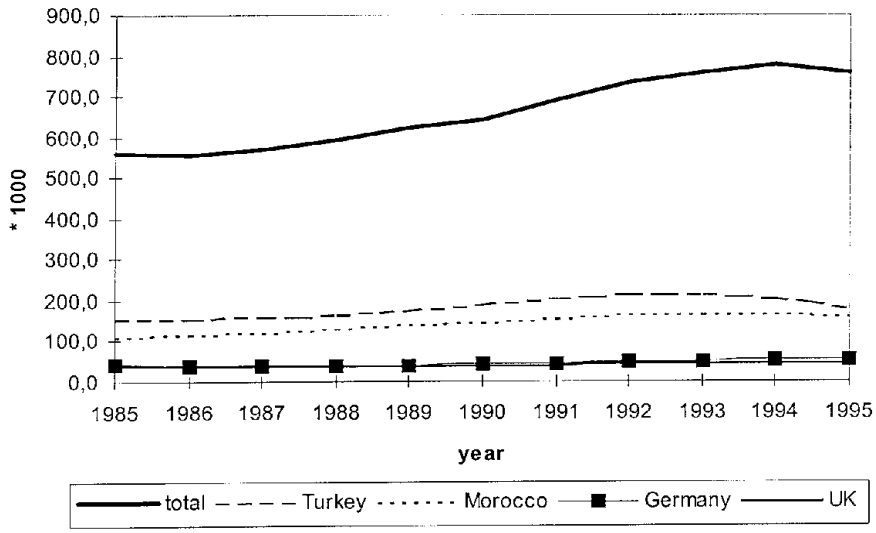
3.3 | The Netherlands

Since the mid-1950s SN has produced statistics on non-nationals: those who have residence in the Netherlands but do not have the Dutch nationality. In 1996 the number of non-nationals amounted to 181 thousand. Since then this number increased until the early 1980s. In the early 1980s the number of immigrants dropped to very low values, among others as a consequence of the economic recession, and new rules for entering the Netherlands for Turks and Moroccans. Moreover, and already explained in the section on immigration, the agreement between Surinam and the Netherlands allowed a large number of former Surinam citizens to obtain the Netherlands nationality. In the middle of the 1980s the number of non-nationals increased again, mainly as a result of, on the one hand family formation and family reunification in the non-national populations, and on the other hand growing number of asylum seekers who obtained a residence permit. In 1994 the number of non-nationals amounted to 780 thousand. In 1995 a new administrative system was introduced and therefore the (slightly lower) figure for this year is not exactly comparable with the previous year. Nevertheless, there are signs that there was a slight decrease in the size of the stock. The reason for this decrease was the large number of naturalisations in 1995 (Prins, 1996, Tas, 1996): 71 thousand in total, of which approximately half from former Turkish nationality.

The Turks are the largest group of non-nationals in the Netherlands, followed by Moroccans. Of EU countries, the Germans and English are strongly represented (*Figure 21*).

Table 24 shows the results of the addition of the variable STOCK to the economic model of migration for the Netherlands. Model 0 is the final model for the long term estimated in the previous chapter for total immigration of non-nationals. If we add the STOCK variable to this equation the total goodness-of-fit does not increase. The coefficients of the variables

Figure 21. Population of foreign nationality in the Netherlands 1985-1995



SURINAM and Unemployment hardly change. The coefficient of the linear term decreases. Further inspection shows that there is multi-collinearity between the linear trend term and the STOCK variable. The correlation between both is 0.99, which leaves little room for the inclusion of both variables in the equation. The results of model 2 in the table confirm this. The standardized coefficient value of the STOCK variable is almost identical to the linear trend in model 0, the estimated coefficient values of the other variables are highly similar and the R^2 value hardly changes. In other words: the size of the stock of foreign nationality is an alternative to the linear trend variable included in the economic models before. The autonomous increase in immigration observed in the Netherlands could therefore be interpreted as the result of the pull effect of the foreign population in the Netherlands. The size of the unstandardized coefficient of STOCK is 130, which means that for every one thousand population of foreign nationality the immigration in a given year increases with 130.

Table 24. Goodness of fit and standardized coefficients of models including economic indicators and non-national stock in the Netherlands 1968-1993

	Immigration	R^2	Standardized coefficients			
			Linear trend	SURINAM	Unem-ployment	STOCK
0	Economic model	0.93	1.36	0.39	-0.90	–
1	+ Stock	0.93	0.92	0.38	-0.93	0.46
2	+ Stock - linear trend	0.92	–	0.37	-0.96	1.40

We also extended the model of net migration, including two policy variables and unemployment with the stock variable for the period 1968-1995. The results are highly similar, although at a lower level of goodness of fit, which was already observed in the previous chapter. If we replace the linear term with the stock variable the R^2 value of the model reduces slightly from 0.75 to 0.74. The effect of all other variables remains almost unchanged, and the standardized coefficient of the stock variable is 0.94. The unstandardized value is 88, which means that for every one thousand population of foreign origin the net migration increases with 88.

3.4 | Germany

For Germany stocks of the population of foreign nationality are available since 1981 (in the OECD database). The data prior to 1991 refer to West-Germany only. Ethnic Germans with a foreign nationality are excluded as well (Aussiedler). The 1966-1993 long term model for immigration of non-nationals in the previous chapter included a linear trend, the a unification variable, as well as the economic indicators unemployment and compensation per worker (Table 10). Re-estimation of this model for the period 1981-1995 (the period for which the variable STOCKS is available) reveals that the model is valid for this period as well but that the standardized coefficient of compensation per worker is quite low compared to the 1966-1993 period results (model 0 in *Table 25*).

The addition of the STOCK variable increases the goodness-of-fit of the model substantially. However, the unification variable and the compensation per worker now have a (much) lower standardized coefficient. Removing these two variables results in a model that resembles the model for the Netherlands: it includes unemployment, stocks, and a policy variable capturing the effects of the same policy intervention in the period 1994-1995. The only difference is the inclusion of the linear trend in Germany. The correlation between trend and STOCK is much lower in the case of Germany. Instead, multi-collinearity between the trend and the unification policy variable is much stronger.

The estimated unstandardized coefficient value of the STOCK variable is 160. For every one thousand non-national citizens in Germany immigration increases with 160 persons. This is in the same order of magnitude as the value found for the Netherlands.

Table 25. Goodness of fit and standardized coefficients of models including economic indicators and non-national stock in Germany 1981-1995

	Immigration	R^2	Standardized coefficients					
			Linear trend	Unification	Policy	Unem-ployment	Compen-sation	STOCK
0	Economic model	0.88	0.62	0.47	-0.13	-0.40	0.18	–
1	+ Stock	0.95	0.63	0.02	-0.35	-0.50	0.15	0.67
2	+ Stock - unification - comp	0.94	0.77	–	-0.40	-0.51	–	0.64

The results for net migration with STOCK as a regressor are less straightforward. When added to the optimal model estimated in the previous chapter –that includes unemployment as the key economic indicator– the coefficient of STOCK is negative and very small. The model goodness of fit improves only marginally. Although these results are not necessarily in contradiction to the results for immigration, they are hard to explain. Out-migration increases linearly with the size of the stock. However, given the size of the coefficient of the STOCK variable for immigration, it is unlikely that the out-migration rate will exceed this value so that net migration reacts negative on an increase in the stock.

In conclusion from this analysis, we arrive at almost the same model as in the Netherlands for immigration. The interpretation is somewhat different however. In the Netherlands, the stock variable can be seen as a possible interpretation of the observed increase in the level of immigration. In Germany, it adds something to a model with linear trend. The results for net migration in Germany are different from those of the Netherlands. The stock variable is not important for explaining net migration in Germany.

3.5 | Sweden

The results for economic variables as predictors of immigration or net migration in Sweden were not very encouraging. In fact, a reference model without any economic variables turned out to give the best fit. We take therefore the reference model as the point of departure.

Data on the stock of non-nationals are available from 1981 onwards in the OECD data base. *Table 26* gives the results of the estimation of the reference model and models with the variable STOCK included.

These results are not very convincing evidence that STOCK is important in predicting the size of immigration in Sweden. In fact, the standardized coefficient is low, and changes sign, according to whether the linear trend is included or not. The difference in R^2 value of model 2 and 3 is very small, indicating that the variable does not add anything to explanatory power. The results for net migration show the same type of results. For Sweden, the size of the migrant population is not very important in determining the size of immigration. This conclusion contrasts strongly with the results found in the Netherlands and Germany, as was already the case with the results of the analyses of economic variables.

Table 26. *Goodness of fit and standardized coefficients of models including economic indicators and non-national stock in Sweden 1981-1995*

	Immigration	Standardized coefficients				
		R^2	Linear Trend	Peak 89-90	Peak 93-94	STOCK
0	Reference model	0.72	0.71	0.40	0.41	–
1	+ Stock	0.75	0.72	0.39	0.39	-0.33
2	+ Stock - linear trend	0.61	–	0.53	0.54	0.16
3	- Stock - linear trend	0.60	–	0.55	0.67	–

3.6 | United Kingdom

Data on the size of the foreign population are only available for the period 1985-1995 in the United Kingdom. The reference model was the model including a linear term and unemployment, estimated in the previous chapter for the same period. To this model we added the variable STOCK for immigration of non-nationals. The results are reported in *Table 27.*

The sign of STOCK is wrong, and the increase in R^2 is very modest. Similar to the Swedish results this variable does not explain the trend in immigration of foreigners into the United Kingdom.

When STOCK is added to the model for net migration in the period 1985-1995 we find that the optimal economic model, found in the previous chapter for the period 1961-1995 does not give a good fit to the shorter time period 1985-1995: an R^2 of 0.43 and a wrong sign for the economic indicator GDP_r, the level of GDP relative to EU level. Even so, the addition of STOCK to the model does not lead to much better results: an increase in the R^2 of 0.07 and a small value of the standardized coefficient. Therefore, net total migration is not explained in the United Kingdom by the size of the migrant population.

Table 27. *Goodness of fit and standardized coefficients of models including economic indicators and non-national stock in the United Kingdom 1985-1995*

	Immigration	R^2	Standardized coefficients	
			Unemployment	STOCK
0	Reference model	0.56	-0.75	–
1	+ Stock	0.59	-0.80	-0.16

3.7 | Portugal

For Portugal only total net migration is available. In the previous chapter we estimated models including economic indicators for the period 1961-1995 but we found no interpretable optimal model, except for the reference model with a linear term and the variable REVOL, that captured the effect of the political turmoil in 1974/75. The variable STOCK is not available in he OECD data base. We therefore rely on the Eurostat data, that cover the period 1986-1995. First, we re-estimated the reference model (without the variable REVOL, since it in not relevant in this time period), and found that it fits almost as good (R^2 0.68). Addition of the STOCK variable does not change the goodness of fit, and the standardized coefficient of STOCK is almost zero. The stock variable is not important for predicting net migration in Portugal.

3.8 | Conclusions

The results of the addition of the size of foreign populations in a model explaining trends in immigration and net migration are mixed. In the Netherlands and Germany, the variable could be interpreted as one of the factors behind the observed trend in migration. In the other three countries such a relationship was not found. in the Netherlands the stock replaces the linear trend, in Germany, it adds something to the linear trend.

The models pertain to the total foreign population stock and migration flows. The net migration models pertain even to total net migration, including nationals. A finer breakdown into smaller (groups of) nationalities might change the results found. However, the current time series are too short to give reliable results of this type of analysis.

4. Elderly migration

4.1 | Introduction

Europe is aging. The number of retired persons has increased substantially in the last years, as a result of the coming of age of larger cohorts. This process will continue with increased intensity when the baby-boom generation will retire. Due to this structural process, the preference and demands of the elderly are becoming more and more important in society. The growing group of elderly is getting more and more important as consumers. Health care and tourism, to name a few economic sectors, are increasingly dominated by elderly people. Many of these services are locally supplied and therefore the residential location of the elderly is important for the spatial planning of these services. An important question in this respect is whether the elderly upon retirement will remain located in the region where they lived or whether they will move to other, for instance to the quiet rural countryside or to regions where they have their family roots. A study of migration motives in South-East England showed that the elderly, in making relocation decisions, are motivated on the one hand by the characteristics of the house, but on the other hand on the characteristics of the residential environment, such as climate, and recreational facilities. In addition, the social network is important as well (Ford, 1993). Elderly usually migrate within the country in which they reside. Moving behaviour of the elderly is usually studied within national borders (see for instance, Warnes, 1993, Hooimeijer *et al.*, 1993, Kemper, 1993, Oberg *et al.*, 1993, Fokkema, 1997, Van der Molen, 1996). In recent years however, a new trend has emerged of international elderly migration. In particular the relatively sparsely populated regions with a pleasant climate and residential environment –the so-called 'sunbelt'– seem to be interesting residential regions for 'foreign retirees'. For instance, the Baleares and Canary Islands, Madeira and Corse are popular inmigration regions for this group of migrants (Van der Gaag and De Jong, 1997).

In this chapter we will investigate to what extent elderly migration (60+) in recent years has played a role in the European Union migration pattern. To this end, the Eurostat database will be explored in order to sketch the elderly migration pattern. In particular we seek to answer the following questions:

- what share of migration flows is attributable to the elderly?
- how has this share developed recently?
- are there differences in this share for nationals, non-nationals, from within and outside the European Union?
- what was the development of the migration rate of the elderly in recent years?
- what can we expect in coming years, based on the observed current trends?

4.2 | Data on elderly migration

The Eurostat database contains for the countries of the EU data on migration flows by age for the period 1985-1993. Both immigration and emigration are available for broad groups of nationalities (nationals, non-nationals, broken down in EU12 foreigners and non-EU12 foreigners). Data are missing for Austria, France, and Luxembourg. Moreover, for some

other countries the data are not complete: one or more years are missing, nationalities are missing, or only broad age groups are available (Germany). For Ireland and the UK only rounded figures to the nearest thousand are available, which leads to imprecise measurements. Only for Denmark, Finland, the Netherlands, and Sweden data are more or less complete for all years: immigration and emigration by five-year age groups and broad groups of nationality. Here we will use these countries for our analysis.

4.3 | Elderly migration in the period 1985-1993

The share of elderly, here defined as the population of 60+ of age in the immigration flows of Denmark, Finland, the Netherlands and Sweden, summed over the period 1985-1993 is in general quite low: it varies from 2.5 percent in Denmark to 4.0 percent in Sweden (*Table 28*)

The share of the elderly in the immigration has not changed dramatically over the years in this period. In Denmark and Sweden there is a tendency to higher shares of elderly in the 1990s. In absolute terms, the numbers of elderly immigrants have increased substantially, similar to the total number of immigrants. Over the whole period the total number of elderly immigrants amounted to almost 30 thousand for the Netherlands, more than 15 thousand to Sweden, nine thousand to Denmark and four thousand to Finland. These are very moderate figures.

The share of the elderly in emigration has also remained relatively stable in the period 1985-1993. In Denmark and Sweden the share has decreased somewhat. In Denmark and Finland the share in emigration is lower than in immigration, in the Netherlands and Sweden the reverse is true. In absolute terms the number of elderly emigrants is substantially lower than the number of immigrants. The net migration number is therefore in all years in all countries positive, although the numbers are not very large.

Table 28. Share of elderly in immigration in four countries in 1985-1993

	Denmark		Finland		the Netherlands		Sweden	
	immi	emi	immi	emi	immi	emi	immi	emi
1985	1.84	2.02	5.02	2.16	3.65	4.85	3.93	5.29
1986	1.85	2.09	4.97	2.56	3.32	5.28	3.92	5.75
1987	1.93	2.05	3.36	2.12	3.26	4.85	3.92	5.35
1988	2.23	1.65	3.29	2.34	3.11	4.87	3.95	5.36
1989	2.48	1.54	2.89	3.34	3.17	4.45	3.29	5.64
1990	2.65	1.65	2.71	2.25	3.09	4.69	3.69	4.99
1991	3.03	1.92	3.03	2.87	3.09	4.54	4.39	4.7
1992	3.48	1.74	4.47	4.18	3.17	4.75	5.16	4.45
1993	2.57	1.73	5.39	3.37	3.23	4.92	–	–
average share	2.48	1.81	3.88	2.74	3.22	4.79	3.99	5.17
total elderly	8657	5096	4362	1790	29514	23982	15452	9607

4.4 | Is elderly migration mainly return migration?

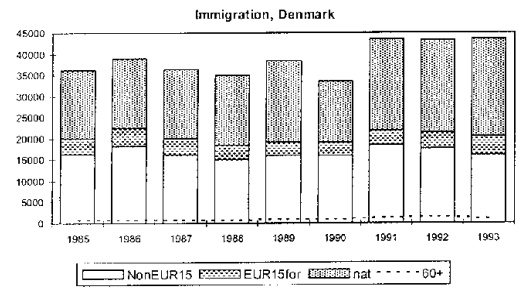
What are the reasons for elderly to migrate? Are they mainly looking for a pleasant residential environment or do they return to their country of origin? Although it is not possible with the available statistical information at the macro level to make statements about migration motives, we may give some indications about the share of return migration in total migration. The share of nationals in elderly immigration and non-nationals in elderly emigration are indications of the relative importance of return migration for the elderly.

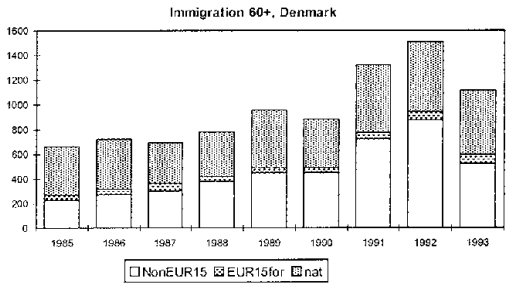
Figure 22 shows the composition of immigration of the four countries in nationals, EU12-foreigners and non-EU12 foreigners in 1985-1993. In the Netherlands the share of nationals in immigration is substantially higher than for total immigration. Sweden has also a higher share of nationals among elderly immigrants. In the Netherlands the majority of elderly immigrants has the Dutch nationality, although this share has decreased somewhat since 1985. In the other countries the majority of immigrants is non-national. The pattern for the elderly is here not different from that of total immigration. Thus, immigration into the Netherlands shows indications of significant return migration among the elderly. In the other countries this is much less visible or absent.

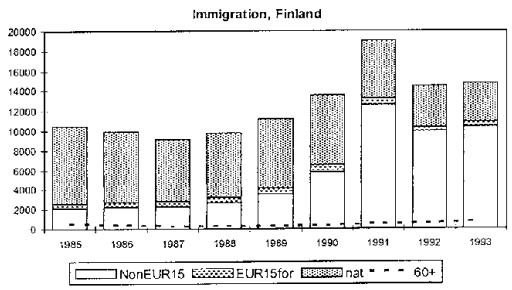
Figure 23 shows that emigration broken down in the same three groups of nationalities is relatively stable. In all countries, except Sweden, nationals form the largest group of emigrants. The pattern is not largely different for elderly emigrants. In Sweden the share of nationals among the elderly emigrants is higher than in the total population. Based on this evidence, elderly emigration in these countries is not dominated by return migration. These statistics do not tell the whole story, however. For instance, in the Netherlands a sizeable group of nationals exist who are born in Surinam or the Dutch Antilles. Return migration in this group is not reflected in emigration of foreigners, but is hidden in the group of nationals in emigration. Despite this shortcoming of the present data, these results do not reflect an increased propensity for return migration among the elderly non-nationals currently living in these four countries.

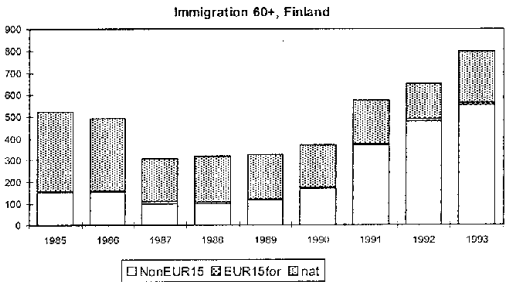
The emigration intensity (here calculated as a probability) among the elderly foreign population is not largely different from the total foreign population. Data allow us to estimate the age specific emigration intensities by nationality for the Netherlands, Sweden and Denmark. For Finland, age groups of the foreign stock and age groups of emigration do not match and therefore rates cannot be calculated. *Table 29* shows the average migration probability for recent years for the three countries, by broad age group and foreign nationality groups. The rates are available for individual years but are very stable over time. A number of conclusions may be drawn from this table. First, non-EU foreigners have a much higher migration propensity than EU foreigners. This is true for both age groups distinguished. Second, the 60+ foreigners have in general a lower emigration propensity, except for non-EU foreigners in the Netherlands and Sweden. These statistics do not give evidence to a relatively high return migration rate among the elderly non-nationals in these countries.

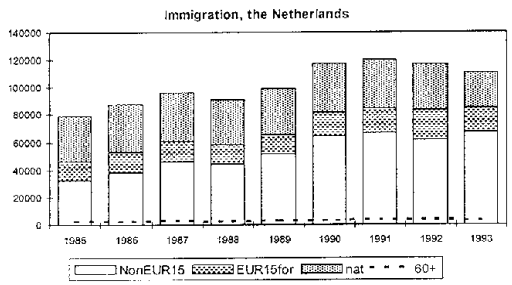
Figure 22. *Composition of immigration of the five countries in nationals, EU12 foreigners and non-EU12 foreigners in 1985-1993*

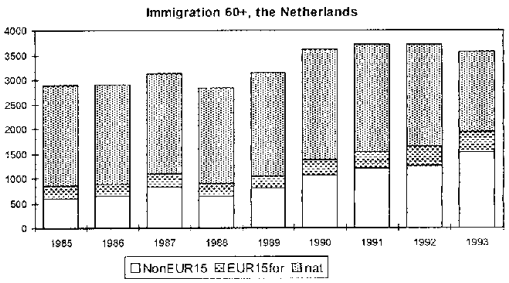


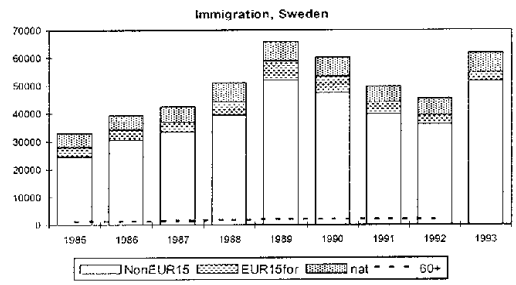












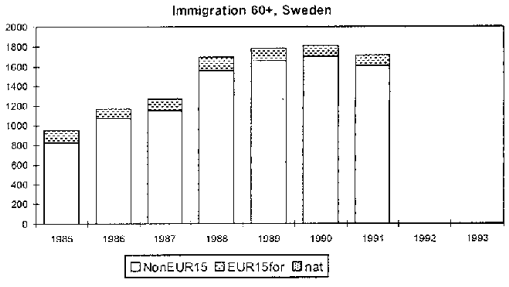
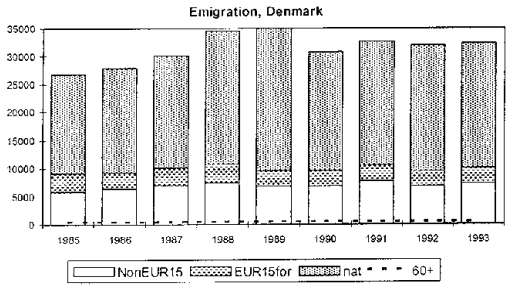
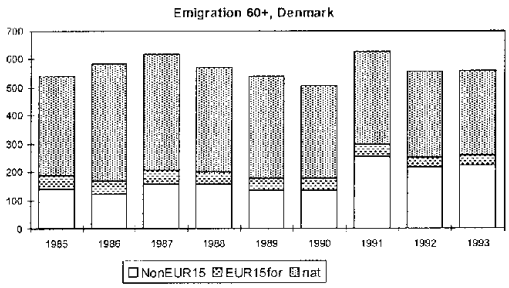
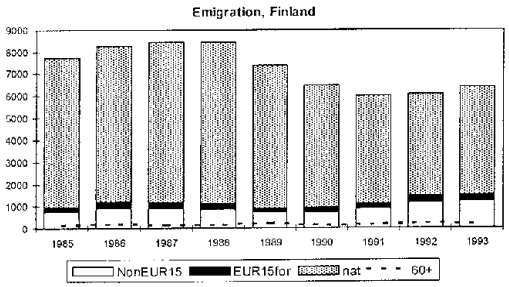
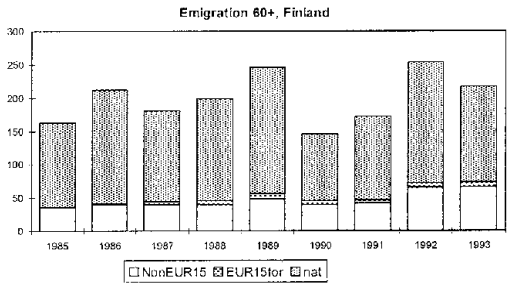


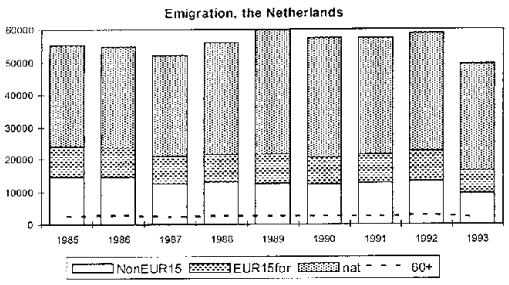
Figure 23. Emigration by group of nationality

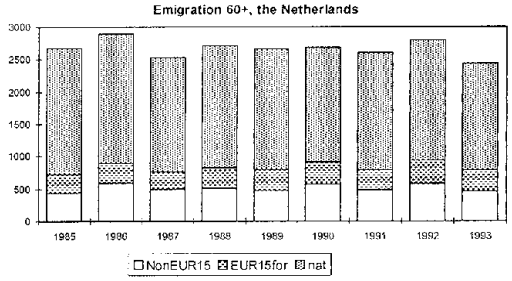


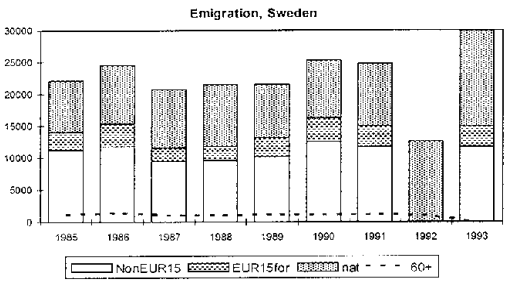












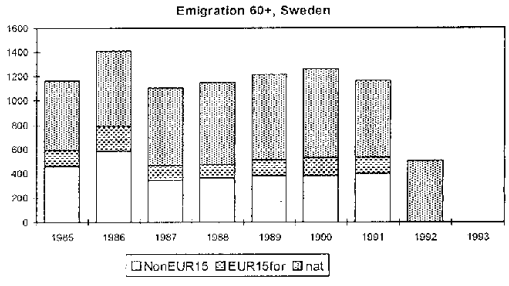


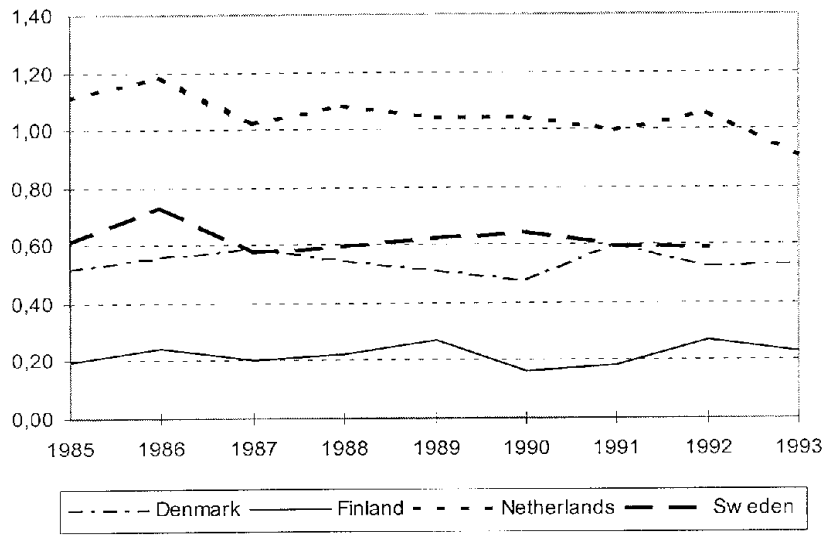
Table 29. Average emigration probability by broad age groups and groups of citizenship for three countries

Country	Period	0-60		60+	
		EU foreigners	non-EU foreigners	EU foreigners	Non-EU foreigners
Denmark	1985-1993	0.04	0.18	0.011	0.144
The Netherlands	1986-1993	0.022	0.046	0.019	0.065
Sweden	1985-1991	0.009	0.128	0.007	0.129

4.5 Migration propensities of the elderly

The present elderly generations differ in many ways from the previous elderly generations. Today, the elderly are healthier and many of them enjoy a well-deserved pension (Davis, 1995, Van Dalen, 1997). Both aspects may lead to a higher propensity of the elderly to migrate. An interesting question therefore is whether the migration intensity of the elderly has increased in recent years. *Figure 24* presents some information on the time trends of elderly migration intensities. There is no sign of increasing migration propensities since 1985. On the contrary, the level in the last ten years has remained more or less constant, or, if anything, then a slightly downward trend may be observed in Sweden and the Netherlands.

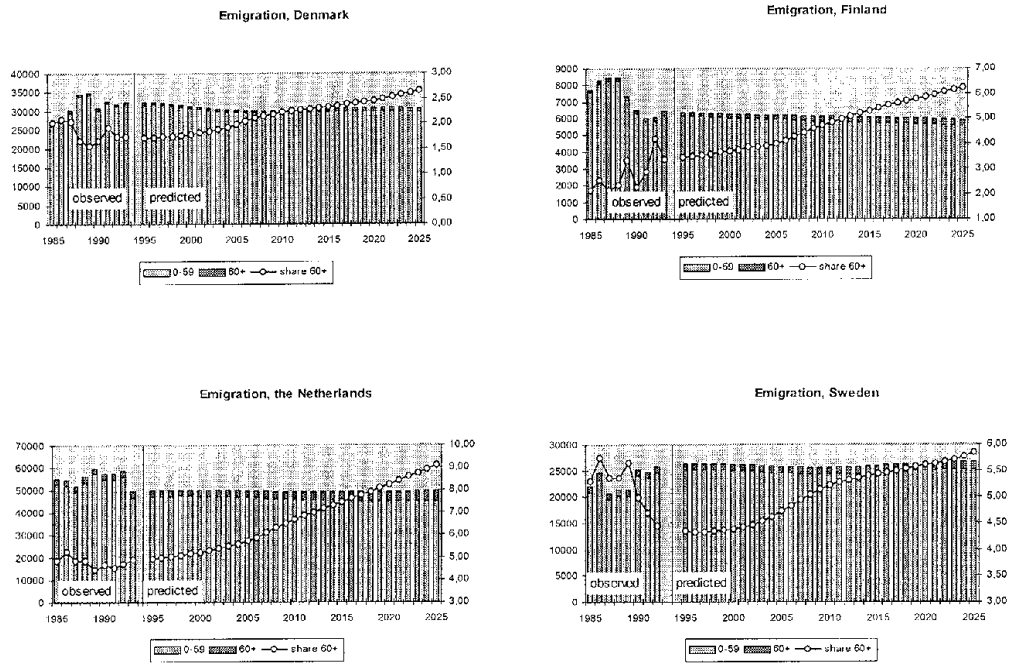
Figure 24. Emigration per 1000 of the population of 60+, 1985-1995



4.6 | Pension migration in the future

At present, elderly migration is very modest. Due to the increase in the number of elderly in the future, this may change. A further integration of Europe may enhance increased migration between countries. The large populations of non-nationals in the future may have a positive effect on migration as well, both in the form of additional immigration (the network effect of the non-native population on immigration studied in the previous chapter) but also on return migration. The central regions of the European Union are among the most densely populated urbanized regions in the world. In some of these regions a further growth could become problematic in the near future, when viewed from an environmental perspective. At the same time, many peripheral rural regions with a low population density suffer from population decline. Exactly these regions may be attractive to retired households in the future. These environmental factors could lead to a higher migration rate in the future, but so far no sign of such an increase has been observed. But even if we anticipate a constant migration rate of the elderly in the future, due to the increased size of the elderly population the size of the elderly migrant flows will increase. *Figure 25* gives an impression of the time trend in the volume of elderly migration in recent years and in the near future. The projected time trend until 2025 is calculated solely as a function of changes in the size of the elderly population. For these projections the base scenario of the most recent population scenarios for the EU (De Beer and De Jong, 1996) were used. Migration rates are assumed to remain constant at the 1993 level. These calculations show that not only the elderly migration flows will increase in size, but that the share in the total migration flow will increase as well. The most pronounced increase may be observed in the Netherlands (from 4.9 to 9.1 percent) and Finland (from 3.4 to 6.2 percent).

Figure 25. Emigration per 1000 of the population 60+, 1985-2005



4.7 | Conclusions

This chapter has described some main features of pension and elderly migration in the European Union in recent years. First, we observed that the share of elderly migration in the total immigration flows is very moderate and in the range of two to five percent at most. This share in total migration has not increased in recent years, but since the volume of immigration has increased substantially in the 1990s compared to the 1980s, the size of elderly immigration flows in absolute terms has grown substantially. The emigration rate has not increased either since 1985, and is in the order of 1 per 1000. Therefore, elderly migration is at present not especially important in the European Union. However, cohorts of migrant populations are ageing and the size of these populations is increasing substantially in various countries. For instance in the Netherlands the size of the five most important populations of foreign descent will grow from 1.3 million in 1996 to 2,5 million in 2016 (Manting and Butzelaar, 1997). The stock of foreign populations will have an effect on immigration (as analysed in this report) and emigration. Here, we studied the development of return migration, and we found evidence that on the one hand return migration is an important component of elderly immigration. On the other hand we do not have support for more than average return migration for elderly non-nationals in the countries analysed. However, at present the size of the elderly non-national populations is very small in most European countries. In the next decades the ageing process will result in larger categories of non-national elderly populations, and this may be accompanied by new forms of elderly migration behaviour of these groups.

Finally, elderly migration will become more important in the near future, if only due to the ageing of the population. The development of the migration propensity of the elderly in the near future remains unclear based on current trends. The present trends give no indication of increased motivations for emigration. Nevertheless, given the economic prospects of the elderly, in combination with spatial and environmental developments it is not unlikely that migration behaviour of the elderly may change in the future.

5. The effect of EU integration on migration within Europe

5.1 | Introduction

The European Union started as the European Economic Community in 1958 with six countries: Germany, France, Italy and the three Benelux countries. One of the main integrating elements of the European Union is the free movement of persons, goods, and services within and between all participating countries. In principle there are no legal barriers for a EU citizen to move and live in another country within the EU. It is much more difficult to enter the EU as a migrant and obtain a residence permit. Therefore, at least in principle, migration between EU countries is much easier than migration crossing the outside EU borders. The enlargement of the Union in 1986, with Spain and Portugal, or in 1995, when Sweden, Finland and Austria joined the European Union may have stimulated intra EU migration from and to these countries, simply because the legal restrictions have been removed by entering the EU. Unfortunately, it is difficult to test this hypothesis, because, as we have seen in previous chapters, migration flow data by country of citizenship or country of origin are only available for the period 1985-1995. This means that we can only look what the consequences after 1985 are of entry of Spain and Portugal into the Union, whereas it is still too short to see how the size of the migrant flows between Sweden, Finland, and Austria on the one hand, and EU countries on the other, has developed. We therefore concentrate on the development of intra EU-migration to and from Portugal and Spain after 1985, the time of entry of these countries in the Union. These data cannot be collected from these two countries themselves, because they are not available here. Instead, we concentrate on immi- and emigration as recorded in a number of other European countries, in particular Belgium, Denmark, Germany, France Greece, the Netherlands, and the United Kingdom. The reliability of the UK data for individual countries of citizenship or origin is doubtful however, and therefore the UK is not always included in the analysis. The same applies to France, where the 1992 immigration figures are totally different from all other years.

We may expect increased intra-EU migration flows to and from Spain and Portugal after 1986. Most likely this process will take some time to develop: the effect may only be felt in its full strength after a number of years. In the transition period until the 1st of March 1993 migration between these countries and the other EU countries was still restricted. Information networks must be established, and new markets must be set up. An example of new markets is the emergence of real estate agencies aiming to attract international migrants. Indeed, when looking at migration of both countries over a longer time perspective, 1985 is not a particular outstanding year in which a sudden change in migration level could be observed. Therefore, we have to look at migration flows to and from individual EU countries over a longer time horizon. Unfortunately, and already mentioned in previous chapters, these data are only available starting in 1985. We can therefore look at the time trends of migration to and from Portugal and Spain starting in 1985 until the most recent observation. These trends cannot be compared to the trends before 1985 but we can take the time trend of other migration flows as a control group. For instance, when looking at the time trend of migration from Germany to Portugal, we observe a steady increase after 1985. This may be due to a general rise in emigration from Germany, or it may be specific for Portugal. By comparing this flow with the flow from Germany to other EU countries, or other

Southern European countries we may be able to draw a tentative conclusion regarding the migration effect of Portugal joining the EU.

Migration within the European Union in relation to the liberation of the movement of labour wiithin its borders has been studied before. Böhning (1972) studied the effect of the opening of the internal borders for labour migrants and found no significant effects in the period 1968-1972. The anticipated flow of Italians to Western Europe did not occur, and the migration pattern of EU countries did not differ very much from non-EEC countries Switzerland and the UK (not a member in 1972). Penninx and Muus (1989) found that the expected flow of EU citizens from less developed in Europe to more developed regions in Europe has not occurred in the eighties. Nevertheless, the exchange of citizens between countries has increased. This exchange is particularly strong in times of economic boom.

In the next sections we will study migration exchange processes between on the one hand Spain and Portugal and on the other hand other European countries. Section 5.3 draws some conclusions.

5.2 | Migration from Spain/Portugal to EU countries

5.2.1. Migration from Spain and Portugal to other European countries

We first look at the development of migration of Spanish and Portugese nationals into other EU countries. *Figures 26* shows the time trends of migration flows out of Spain and Portugal into the major European destinations. Traditionally, Switzerland and Germany have always been an important destinations and they are depicted separately. The other EU-15 destinations are aggregated into one curve. The three curves of emigration flows out of Spain show different developments. First, migration into Switzerland, which amounted to about seven thousand in the second half of the eighties, reached a peak in 1990 and dropped considerably thereafter until less than three thousand in 1995. Second, immigration into Germany has been increasing steadily since 1985 from three thousand to seven thousand in 1995. Thirdly, immigration into other EU countries more than doubled after 1992 and reached a peak in 1994, to drop somewhat in 1995. However, this was mainly caused by a large increase to the United Kingdom: from about one thousand in 1992 to four thousand in 1993. The reliability of this figure is not very high, although a further increase 4.5 thousand was observed in 1995. The increase in migration flows to the other countries of the EU is much more modest (*Figure 27*). A small increase may be observed from 1991 to 1992 in some countries, but not in others. Immigration figures into France are highly volatile.

Combining these results we observe that since 1990 migration from Spain to Switzerland decreased with approximately five thousand persons, whereas immigration into the EU increased with about seven thousand persons, but the reliability of these data is questionable. The increase of immigration into EU countries may therefore to a large extent be attributed to a substitution of migration flows from Switzerland to Germany and other EU countries. Nevertheless, it is questionable whether this substitution would have occurred if Spain had not entered the European Union and Germany would not have been a feasible alternative.

The size of the migration flow of Portugese nationals to Europe is much larger (*Figure 28*). Immigration into Switzerland amounted to 20 thousand in 1990 but decreased until about 10 thousand in 1995. Immigration into Germany increased steadily from 1985 until 1992, when

it reached a level of 10 thousand, but rose sharply in 1994 and 1995 until 30 thousand. Immigration flows into other EU countries remained more or less stable until 1992 but showed a peak in 1993 of over 10 thousand, to drop back to previous levels in 1995. Contrary to the Spanish results, substitution from Switzerland to Germany explains only partly the large increase of migration into Germany. Therefore, this increase may partly be attributed to the integration of Portugal into the EU. The effect on other EU countries is only temporarily in 1993, and caused to a large degree by a temporary high figure for France, the reliability of which is low. *Figure 29* shows the time trends of immigration into the most important immigration countries for Portugese nationals. A small immigration peak can be observed in 1992 into Belgium and the Netherlands, but in all the data do not show a marked change of trend.

The question is of course whether the large increase of migration observed into Germany is due to the integration of Spain and Portugal in the EU. The increase might be due to a generic push effect in the sending country, but we already observed that immigration into Switzerland decreased since 1990. The substantial substitution from Switzerland to Germany is part of the explanation of the increase in Germany. Time series of immigration of Spanish and Portugese citizens into other non-EU countries are not available. The increase of the immigration flow into Germany might also be due to a generic pull effect of the receiving country. In order to check for this effect, a comparison must be made with immigration of other EU nationals into Germany. *Figure 30* shows the indexed time trend of immigration of Spanish and Portugese nationals into Germany, as well as the time trend of nationals from other southern EU countries Italy and Greece, other EU countries and total immigration. For comparison, *Figures 31* and *32* show the same trends for the Netherlands and Belgium. The development of Portugese immigration since 1985, and in particular since the 1990s is clearly above average for all three countries. These countries are among the major EU destinations for Portugese and Spanish migrants. For the UK and France, the data are not reliable to make any statement about these trends.

We may concluded that the enlargement of the EU has had significant positive effects upon emigration from Portugal to Europe, and in particular to Germany. It had only limited effect on migration from Spain to European countries. The observed effect for Spain was largely attributable to substitution of migration from Switzerland to Germany. This substitution occurred with Portugese emigration as well, but this explains only half of the increase into Germany.

5.2.2. Immigration into Spain and Portugal

The immigration from EU countries into Spain or Portugal may also reveal effects of the opening of the borders. Immigration from UK and German nationals are by far the most important flows into both Spain and Portugal (*Figures 33* to *36*). In Spain immigration of German nationals is very stable over time. The time trend of UK nationals shows much more variation, but this may be largely due to the nature of the (sample) data. A high peak is visible in the second half of the 1980s, but over the ten-year period there is no structural upward trend. Immigration into Portugal is quite different as regards German nationals. Here a strong increase is apparent after an initial decrease until 1988, although the rate of increase is much smaller than is the case with emigration from Portugal. Similarly, immigration of Danish nationals has grown with the same rate.

Figure 26. Immigration of Spanish nationals into EU-countries

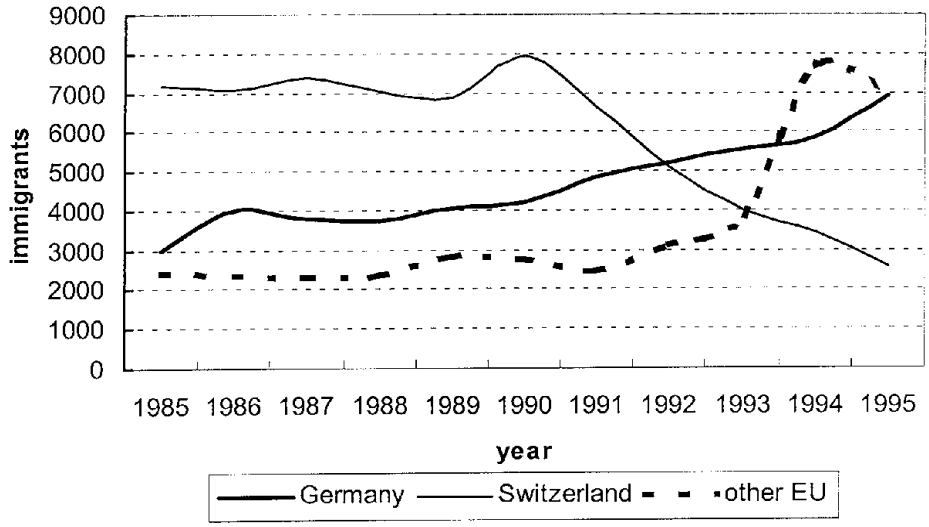


Figure 27 Immigration of Spanish Nationals in selected other EU countries

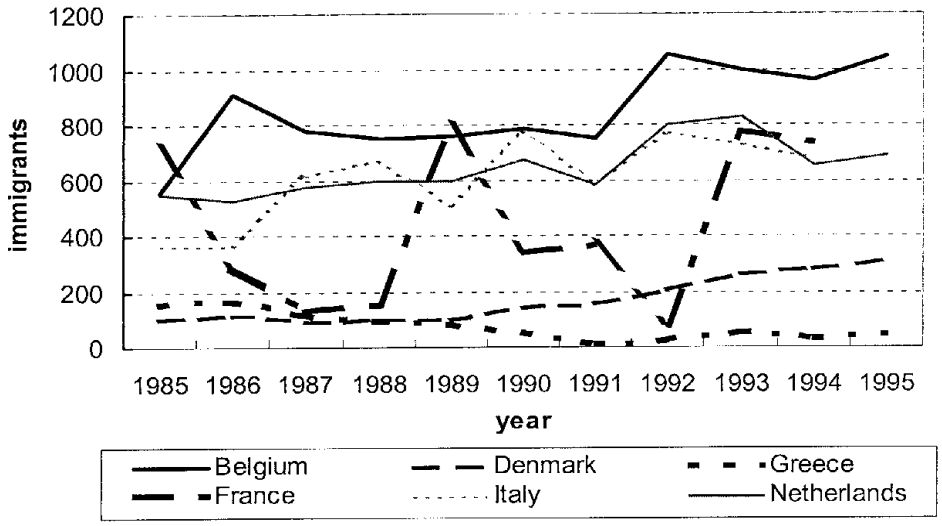


Figure 28. Immigration of Portugese nationals into EU-countries

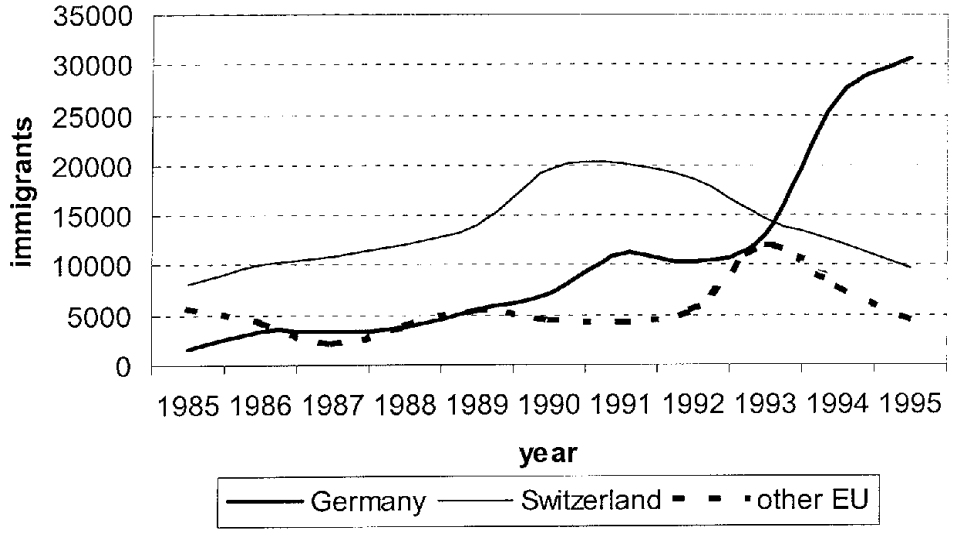


Figure 29. Immigration of Portugese nationals into selected other EU countries

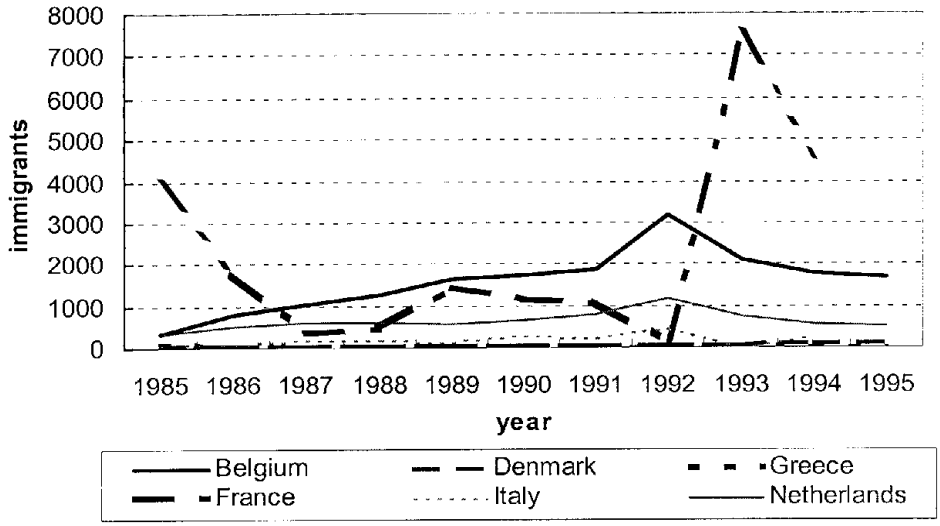


Figure 30. *Immigration of EU-nationals into Germany*

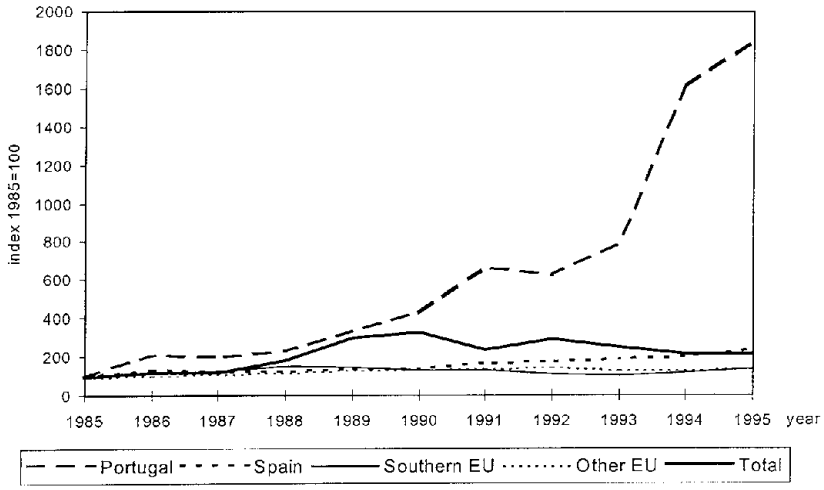


Figure 31. *Immigration of EU-nationals into the Netherlands*

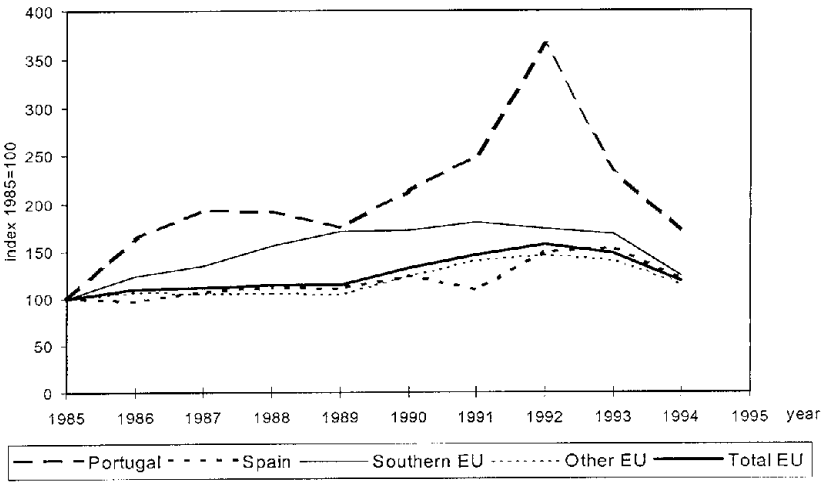


Figure 32. *Immigration of EU-nationals into Belgium*

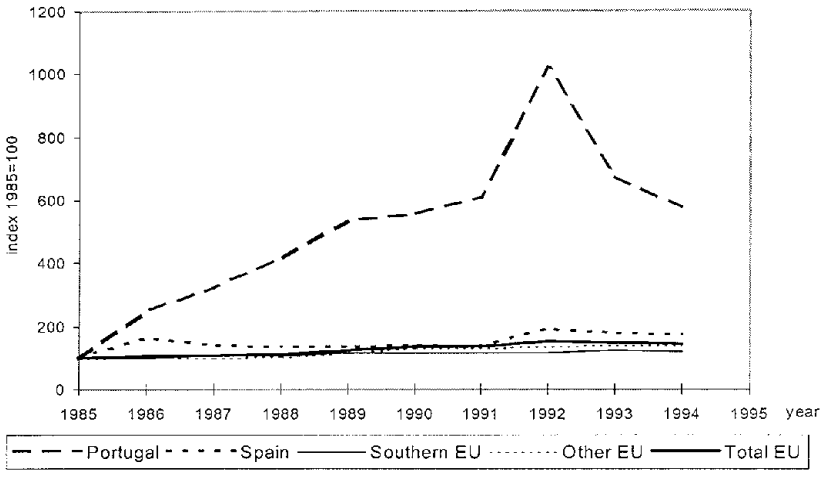


Figure 33. Immigration into Spain from EU-nationalities

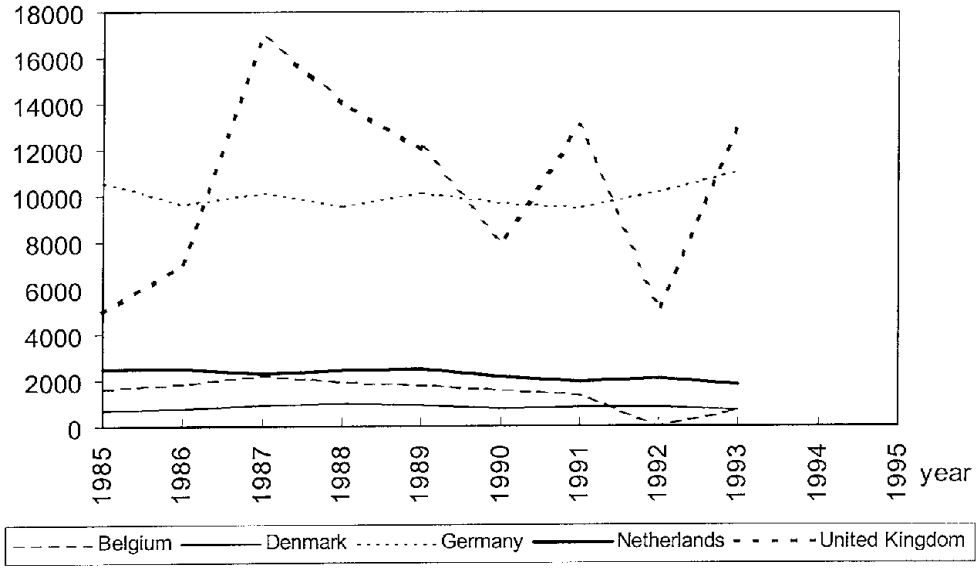


Figure 34. Immigration into Portugal from EU-nationalities

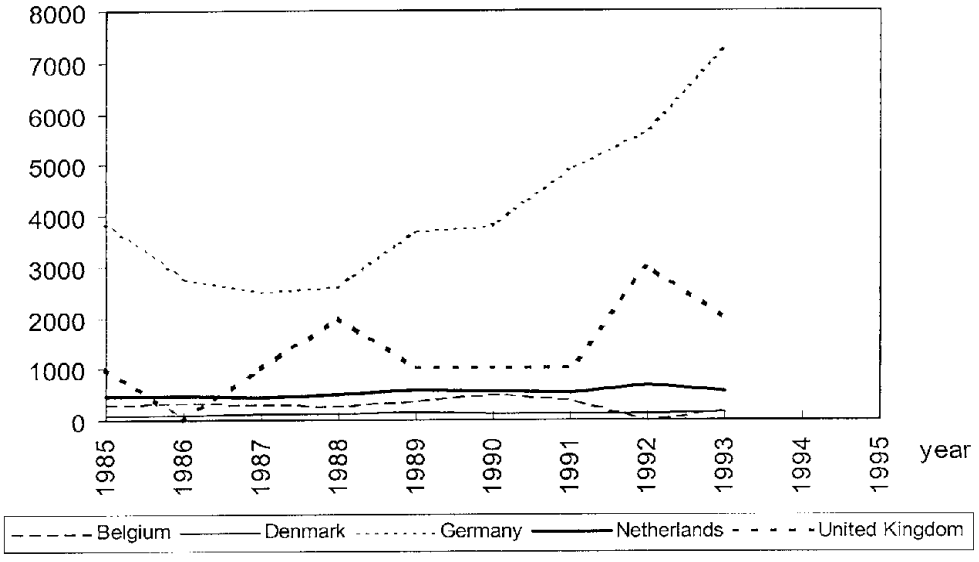


Figure 35. Immigration into Spain from EU-nationalities

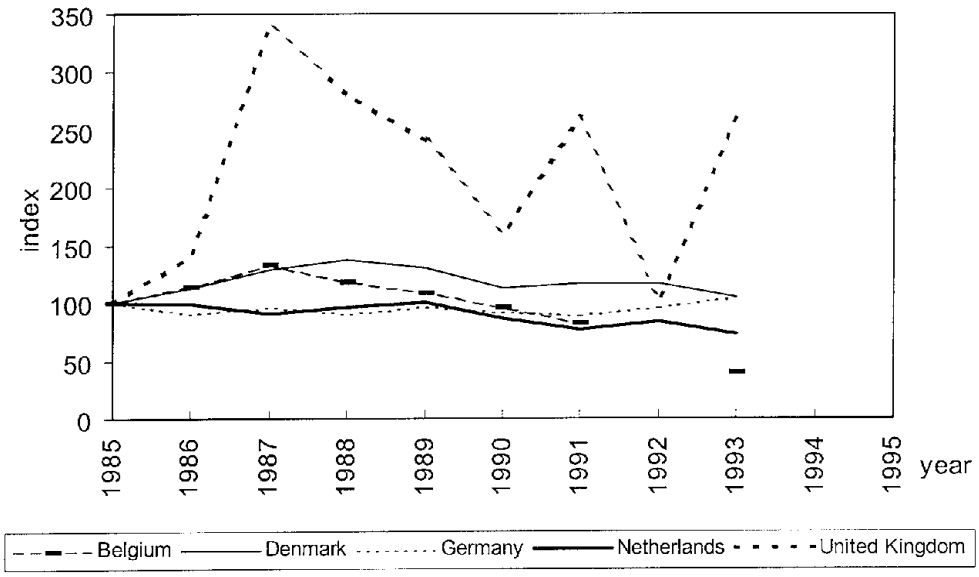
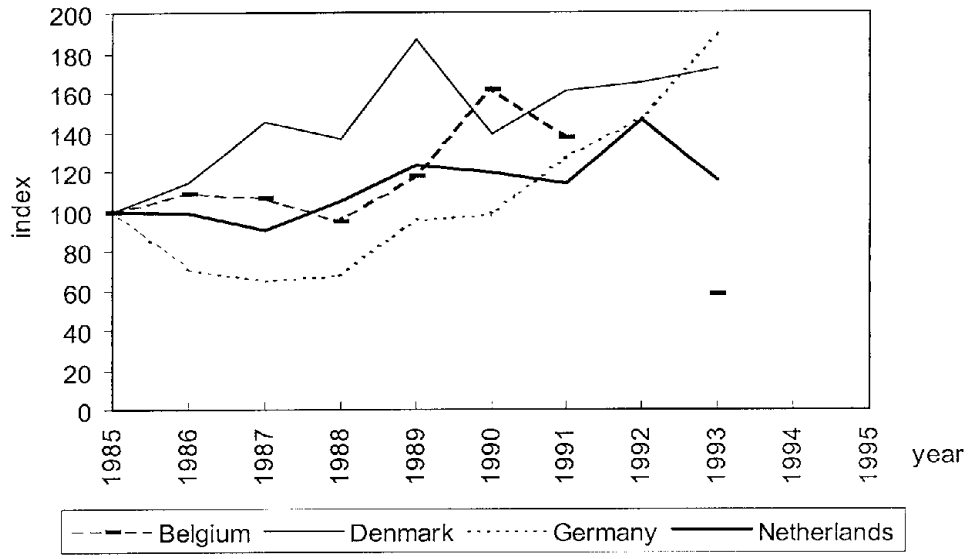


Figure 36. Immigration into Portugal from EU-nationalities



5.3 | Conclusions

The time trends of migration to and from Portugal and Spain since the integration of these countries into the European Union reveal a number of mixed developments. Firstly, we note the difference between Spain and Portugal. Intra-EU migration flows to and from Portugal have grown substantially, especially in the 1990s, whereas migration to and from Spain has grown at a much lower pace or remained at the same level. In any case, the effect of joining the EU in terms of migration flows has worked out differently for both countries. In other words, there is no uniform migration effect of joining the EU. Secondly, the increase in immigration was mainly observed in Germany and much less in other countries. Thirdly, part, but especially for Portugal not all of this increase is due to a substitution of migration from Switzerland to Germany. Fourthly, the effect occurred mainly after 1992. Third, in the case of Portugal, emigration is much more affected than immigration.

We may conclude in more general terms therefore, that the enlargement of the EU may have positive effects upon intra-European migration with the countries involved. In the case of Portugal a substantial increase in emigration to Germany and a number of North-west European countries emerged as an effect of the entry into the Union. The results on immigration were also visible, but were not as large as for emigration. This result may also be explained with reference to the relatively underdeveloped status of Portugal: economic motivations will stimulate net out-migration to more developed countries. Whether the more developed status of Spain explains the absence of large migratory effects of the entry in the European Union cannot be inferred from this analysis. Migration into Spain from other EU countries, –which is primarily motivated for leisure and retirement reasons– has not increased either.

The results of Portugal entering the Union are different from those found by Penninx and Muus (1989), who concluded that the opening of the borders did not result in substantial increases of lows from less developed to more developed regions. A substantial increase has occurred in 1994 and 1995. It remains to be seen if this flow will persist in the years after 1995. They also remarked that in general the exchange of citizens between countries increased. For Spain this is hardly the case, but for Portugal we also see an increase in immigration, especially of German citizens. Since emigration increased more strongly, the migration balance of Portugal with Europe has become more negative since 1990.

6. The relation between asylum statistics and migration statistics

6.1 | Introduction[1]

Since the 1990s the number of asylum-seekers in Europe has increased dramatically. A number of factors account for this development. First, the opening of the borders with the former East-block enabled people who formerly were unable to enter, to 'knock on the door' for refuge inside the EU. The downfall of the communist system in Eastern Europe, which caused these borders to open, also resulted in increasing tensions in various parts of the world. Yugoslavia is a case in point, but also in Asia and Africa civil war and international conflicts resulted in large refugee populations in need of protection. Although most of these refugees find shelter in or close to their region of origin, a substantial share seeks protection in the EU. This large inflow of asylum-seekers is one of the most significant demographic developments in the EU in recent years.

An asylum-seeker is not an immigrant, but "[...] from a demographic point of view, asylum-seekers create a flow of people, coming into or leaving a country" (European Commission, 1994a, p. 50). Therefore, there is a relation between entering the country as an asylum-seeker and becoming an immigrant. In general, a person entering a country as an applicant for asylum may become an immigrant. The large growth of the number of asylum-seekers is therefore the main source of growth of the number of immigrants into EU countries in recent years. *Figure 37* depicts the trend in the number of registered applications for asylum in the EU countries and the number of immigrants originating from non-EEA countries plus Switzerland, into EU countries. Migration data for Austria and Luxemburg are not available.

The key question to be answered in this section is to what extent statistics on asylum-seekers can be used for projections on migration. Figure 37 shows that the trend in applications is closely reflected, although at a higher level, in the immigration figures for the EU. One might tentatively conclude from this graph that most of the increase in immigration in the EU from non-EEA countries in the period 1985-1995 is due to the increase in the number of asylum-seekers.

However, the relationship between asylum and immigration is more complex than this. The procedures for an asylum applicant to become an immigrant vary widely between countries, due to different immigration statistics, the existence of a population census or a register,

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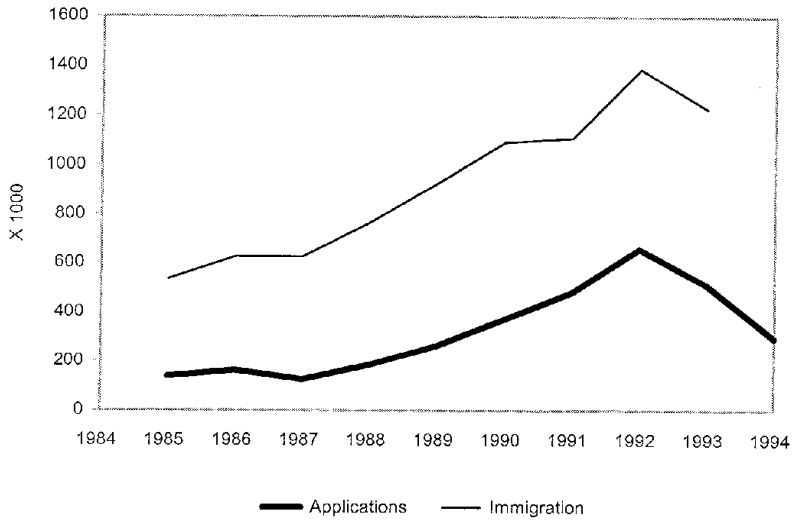
[1] This section draws heavily on section 5.3 of the European Commission, 1994a and 1994b.

Figure 37. Applications and immigration from non-EEA plus Switzerland countries into EU



legislation, and so on. Below we will summarise the main difference between the EU countries.

In all EU countries asylum and migration statistics are not integrated. As a result, they are usually not consistent. Portugal is the only country within the EU that includes *all* asylum-seekers who passed the pre-screening procedure upon arrival, in the immigration statistics. In most countries asylum-seekers are included in the immigration statistics if they are registered in the population or aliens register. The conditions under which this happens vary between countries. In many countries registration is dependent on a positive decision regarding the request for asylum (Greece, Spain, France, Ireland, Iceland, and Sweden). In other countries, registration occurs automatically after a certain period of stay. In Norway an asylum-seeker is usually registered in the population register within two weeks after arrival. In Switzerland an asylum-seeker is regarded as an immigrant if he or she is still in the country one year after arrival. In Ireland and the UK no register exists. In Ireland an asylum-seeker is counted as an immigrant if he or she is surveyed in the Labour Force Survey, or –less frequent– the census. In the UK only persons who apply for asylum at the port of entry are counted as immigrants. These conventions may change in time however, since many countries adjust their regulations in order to limit the number of applications. In the Netherlands, for instance since 1994 it is impossible to register as an immigrant without a legal residence permit (an asylum status) (Nicolaas, 1994b).

Only in very limited number of cases (Portugal, Greece, Italy, Spain) can asylum-seekers be identified separately in the immigration statistics. In order to assess the number of immigrants due to the asylum process, both types of statistics, by country of origin or nationality have to be compared. In most countries a time lag of one year or more is likely between the time of application and the registration as an immigrant.

In a recent study by Torstensson and Cotter (1997) a cohort-based study was conducted on asylum in order to gain insight into the duration of the time interval between an application for asylum and the final asylum decision. Asylum-seekers from Turkey and Somalia were investigated. For comparison, six typical asylum 'biographies' were defined. Only a limited number of biographies lead to a stay permit (Convention status or residence permit). In

Switzerland the mean number of days between application and positive decision is 411 for the 1992 cohort and 283 for the 1993 cohort of origin Turkey. In Sweden the respective numbers are 340 and 378. This means that in Sweden Turkish asylum-seekers show up in the migration statistics about one year after application. In Switzerland, as explained above, inclusion in the migration statistics is automatically after one year of stay. The average number of days of the process for Somali asylum-seekers was for Switzerland in the order of seven to nine months and for Sweden in the order of 11 to 13 months.

This longitudinal study shows, at least for the 1992 and 1993 cohorts of Somali and Turkish asylum-seekers in Switzerland, that there exists an average time lag of about one year between application and becoming an immigrant. Nevertheless, there are still large groups in these cohorts who obtain a permit after much more than a year. These tails in the distribution of durations is smaller for Turks than for Somali, and is different for Switzerland and Sweden. In any case, after four years the group with decisions still pending is very small. Therefore, statistics on asylum-seekers only help to predict immigration in the short run of up to four years in these countries. Unfortunately, similar longitudinal studies have not been conducted in other countries, and therefore no comparable estimates on a longitudinal basis can be made for other countries. An indirect estimate is possible by comparing period-based statistics on applications and immigration statistics for a number of countries. This will be done in the next sections for The Netherlands, Germany, Sweden, and the United Kingdom. Although the United Kingdom data on immigration are not sufficient to permit a more detailed statistical analysis, some time series will be presented. For Portugal, the time series on immigration are too short to allow a more detailed analysis.

6.2 | Period-based comparison between asylum applications and immigration statistics

Asylum data were derived from the Eurostat database on asylum-seekers and refugees for EU and EFTA countries. Immigration statistics were taken from the Eurostat database on migration statistics. The migration statistics comprise time series generally between 1985 and 1993, with additional information for a number of countries for 1995. The asylum statistics generally run until 1996. For a more detailed discussion the reader is referred to Chapter 7. Additional time series for immigration and asylum requests of various nationalities in the Netherlands, Germany, Sweden and the UK are given in a annexes 1 to 4.

6.2.1. The Netherlands

For the Netherlands the Eurostat migration statistics were incomplete but could be updated with information from SN, which resulted in a complete time series from 1985 up to 1995 for a number of nationalities. For other nationalities statistics on 1994 are missing. *Figure 38* shows the total number of applications for asylum as well as the total number of immigrants from non-EEA nationalities, including Switzerland, into the Netherlands.

There is a clear relationship between both trends. A simple OLS regression of immigration on asylum applications in the same year gives the result presented in *Table 30.* Coefficient values are unbiased, but standard errors of the coefficients (not shown in the table) are not correct, due to serial correlation. The results indicate that the optimal relation between applications and immigration is contemporaneous. The lagged value of the variable Applications, as suggested by the cohort approach discussed above, gives a very bad fit. In combination the total fit improves, but the coefficient value, which is directly comparable to

the coefficient value of the contemporaneous variable, is much smaller. These findings are in accordance with the results found by Zakee (1992a, 1992b) and Nicolaas, (1994a, 1994b) who find only a short time lag of a couple of months between statistics on asylum requests and immigration. However, Nicolaas also observes that this time lag is increasing, due to the high number of asylum requests and the resulting increased duration of stay in asylum-seeker centres.

These aggregate results do not support the hypothesis that statistics on asylum-seekers may be helpful in predicting immigration, even in the short term. This conclusion may not hold for all nationalities however. Therefore, a separate analysis was performed for all major groups who applied for asylum in the Netherlands since 1985.

Figure 38. *Immigration into the Netherlands of non-EEA plus Swiss nationalities and requests for asylum, 1985-1996*

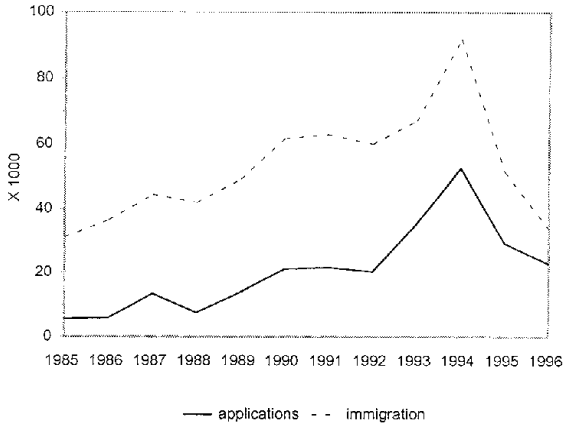


Table 30. *Results of OLS of immigration from non-EEA plus Swiss nationalities (in thousands) on total number of applications for asylum into the Netherlands 1985-1996 (in thousands)*

Independent variables	Model 1	Model 2	Model 3
Constant	30.05	46.36	30.72
Applications(t) * 1000	1.09		1.06
Applications(t-1) * 1000		0.40	0.08
R^2	0.73	0.12	0.87

Annex 1 shows the graphical presentation of both asylum- and immigration time series for a large number of nationalities entering the Netherlands. According to these graphs, and with the help of OLS regressions of immigration on asylum-requests a classification can be made of relationships between immigration statistics and statistics on requests for asylum. These are given in *Table 31.*

From this table it appears that lagged relationships are the exception. The best example of a lagged relationship is given by Somalia and depicted in *Figure 39.* The time lag is approxi-

mately one year and the R^2 is 0.89.

The most striking example of a strong contemporaneous relationship is given by the countries of former Yugoslavia (*Figure 40*). The R^2 of this relationship is 0.90. It is fair to say however that the lagged relationship performs almost equally well here (R^2 = 0.89). This is not the rule and no other nationality has a high (>0.75) lagged relationship between immigration and asylum requests.

In conclusion for the Netherlands it is clear that statistics on asylum requests have a strong influence on migration statistics. The nature of the relationship is mostly contemporaneous, and in only few instances a lagged relationship of one year is apparent. The usefulness of asylum statistics for migration prediction is therefore very low, if not absent.

Table 31. *Classification of OLS regressions of immigration on asylum applications for the Netherlands*

Strength of relationship	Contemporaneous relationship		Lagged relationship	
high ($R^2 > 0.75$)	Yugoslavia Ethiopia Iraq Zaïre	Afghanistan Nigeria India	Somalia	
middle ($0.75 > R^2 > 0.50$)	Iran Ghana	Lebanon	China Syria	countries of former SU
low ($0.50 > R^2 > 0.25$)	Romania Angola	Pakistan Algeria	Poland	
very low/absent ($0.25 > R^2$)	Sri Lanka	Turkey	Morocco	

Figure 39. *Applications for asylum and immigration of Somalian nationality into the Netherlands 1985-1996*

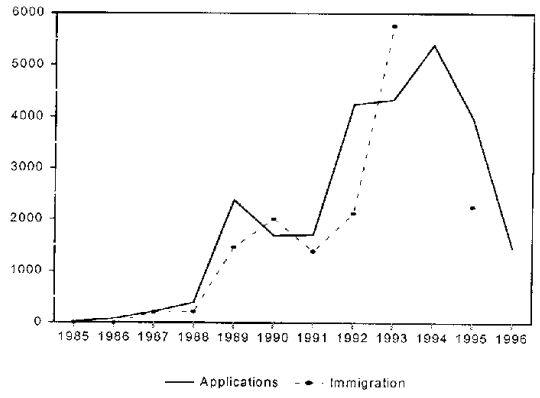
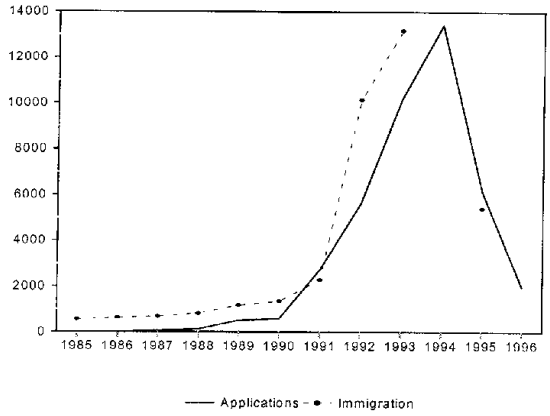


Figure 40. *Applications for asylum and immigration of nationalities of countries of former Yugoslavia into the Netherlands 1985-1996*



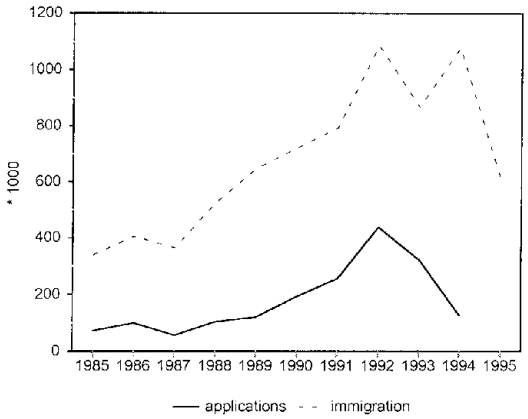
6.2.2. *Germany*

The German data were obtained solely from Eurostat sources. Immigration statistics for 1994 are missing for a large number of countries or origin. Asylum applications cover the period from 1985 to 1994. Unlike the data for the Netherlands, the information on asylum applications is only available for those countries of origin who have a sizeable number of applications in Germany. In addition, the total number of applications, is available for larger regions of origin. These numbers include the smaller numbers of applications that are missing for individual countries.

The German situation is very much different from other European countries, in terms of immigration and requests for asylum. First, the inflow into Germany is dominated by the phenomenon of 'Aussiedler'. These are ethnic Germans for other parts of Europe, mainly Poland, the countries of the former Soviet Union and Romania. This amounted to 400 thousand people in 1990, 223 thousand in 1994 and 134 thousand in 1997. Aussiedler are not officially recognized as immigrants. Second, the separation between East and West-Germany since the Second World War created a flow of 'Übersiedler': immigrants form East-Germany to West-Germany. This flow ceased to exist in the international migration statistics after the reunification. (They can be traced in the internal migration statistics of Germany since then.) With respect to asylum Germany recognized until 1993 the right of foreigners to be granted asylum if they were in need of protection (Eurostat, 1994a). In other countries, according to international law, people are allowed to seek protection from persecution, but there is no right to be granted asylum on these grounds. In 1993 this law was altered, and excluded asylum-applications from so-called 'safe countries' of origin, as well as from people entering Germany from neighbouring countries (the so-called principle of first country of asylum). Despite these alterations, Germany receives by far the largest number of asylum-seekers in Europe, in absolute terms and in relative terms.

Figure 41 depicts the development of immigration and applications for asylum into Germany in the period 1985-1995. In the early 1990s immigration amounted to more than a million people annually, whereas the total number of applications reached a peak in 1992 of 400 thousand, and fell thereafter to a much lower figure.

Figure 41. Applications and immigration into Germany from non-EEA countries (including Switzerland), 1985-1995



There is a correspondence between both curves: a steadily increasing trend until 1992, and a decrease after 1992. However, the number of immigrants fluctuates until 1994, and only reduces thereafter. The 'explained' variance when predicting immigration by using the same year's number of applications is 0.55, whereas using the number of applications of the previous year as a predictor for this year's immigration gives a coefficient of determination of 0.59, which is slightly better, but still not very high. A more detailed analysis in terms of (groups of) countries of origin was performed in order to detect more sound statistical relationships.

First, a breakdown of total non-EEA countries was made according to the major groups of countries: (former) Yugoslavia, Central and Eastern European countries, Africa, and Asia. The figures are interesting in themselves and are depicted in *Figures 42* to *45*.

There is a reasonable to high interdependence between applications and immigration in all cases. A very high, almost one to one correspondence exists between applications and immigration from Africa. When regressed on applications in the same year, immigration is for 97 percent explained (*Table 32*). A very close correspondence exists between applications and immigration from the countries of former Yugoslavia as well. Here a regression of immigrations on applications gives an R^2 of 0.99. However, the lines do not coincide, but applications are a fixed proportion of immigration. For asylum applications and immigration from central and eastern Europe, as well as from Asia the correspondence is clear, but less pronounced. in all cases, the relationship is contemporaneous, not lagged. Table 32 shows that the lagged regression model gives a markedly lower goodness of fit in all four cases.

The R^2 values found for the lagged relationships are generally very low (i.e. below 0.30). *Annex 2* shows the time series of applications and immigration for all listed nationalities in this table. These are the most important nationalities applying for asylum in Germany. These pictures show that there is no lagged relationship between both statistics. From this analysis it appears therefore, that similar to the results found in the Netherlands, statistics on applications for asylum in Germany have no predictive value for immigration.

Figure 42. Applications and asylum into Germany from (former) Yugoslavia, 1985-1995

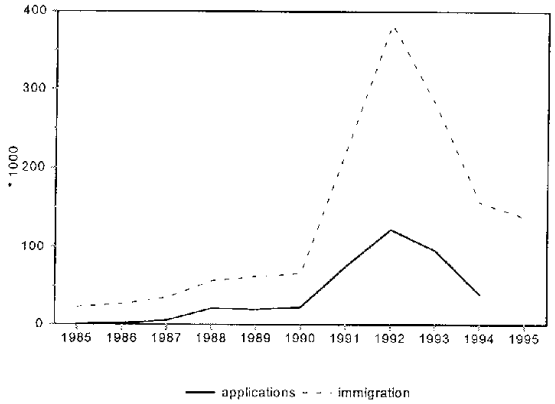


Figure 43. Applications and asylum into Germany from Central and Easter Europe, 1985-1995

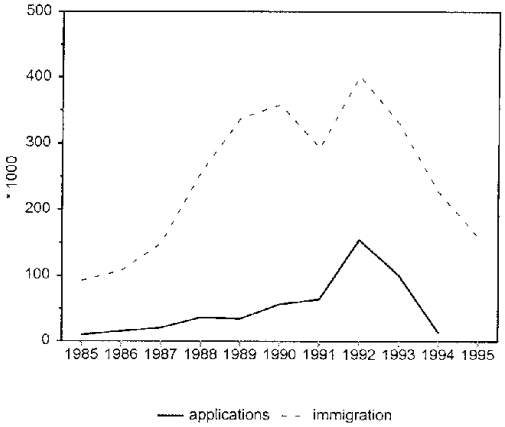


Figure 44. Applications and asylum into Germany from Africa, 1985-1995

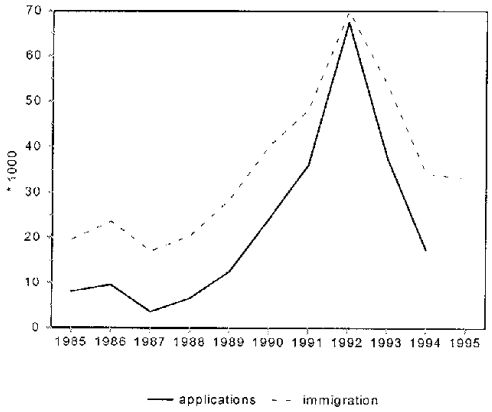


Figure 45. Applications and immigration into Germany from Asia, 1985-1995

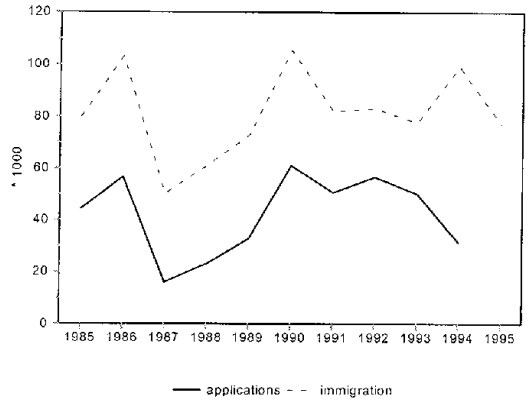


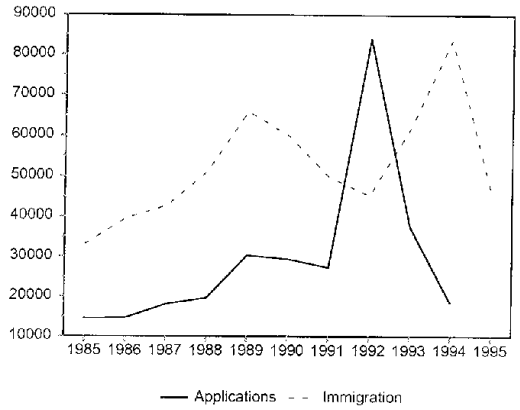
Table 32. Classification of OLS regressions of immigration on asylum applications for Germany

Strength of relationship	Contemporaneous relationship		Lagged relationship
high ($R^2 > 0.75$)	Yugoslavia	Afghanistan	Poland
	Africa	India	
	Romania	Ghana	
	Bulgaria	Pakistan	
	Iran	Ethiopia	
	Sri Lanka	Lebanon	
middle ($0.75 > R^2 > 0.50$)	Asia		Total
	Central and eastern Europe		
	Turkey		
	Ghana		
low ($0.50 > R^2 > 0.25$)	Czechoslovakia		
very low/absent ($0.25 > R^2$)	Hungary		

6.2.3. *Sweden*

The time series for Sweden for total applications and immigration are depicted in *Figure 46.* This picture shows two large peaks: one in 1992 for applications, and one in 1994 for immigration. The form of the immigration curve resembles the applications curve in the 1990s with a lag of two years. However, in the 1980s the pattern is different. This piecewise lagged resemblance is reflected in a regression of immigration on applications. The regression of immigration on applications in the same year has a R^2 value of 0.00. The one year time lagged relationship has an R^2 of 0.18, and the two-year lagged relationship has an R^2 of 0.48.

Figure 46. Applications and immigration into Sweden from non-EEA+ countries, 1985-1995



When looking at the figures for the individual countries of citizenship this two year lagged relationship is visible for the three of the largest groups of applicants for asylum: citizens of former Yugoslavian countries, Iran, and Chile (*Figures 47* to *49*). For Yugoslavia the two-year lagged regression gives an R^2 of 0.91, whereas the one-year lagged specification has an R^2 of 0.06, and the contemporaneous relationship only 0.00. For Iran these number as 0.62, 0.34 and 0.01 respectively. In the case of Chile, the fourth largest group of asylum-seekers in Sweden, and mainly concentrated in 1986 to 1988, immigration was high in 1989 and 1990. The two-year lagged relationship gives an R^2 of 0.41, which is higher than the one year lag (0.05) or the contemporaneous relationship (0.29). *Annex 3* presents the graphical representation of the time series for the most important countries of citizenship asking for asylum in Sweden in the period 1985-1995.

Figure 47. Applications and immigration into Sweden from (former) Yugoslavia, 1985-1995

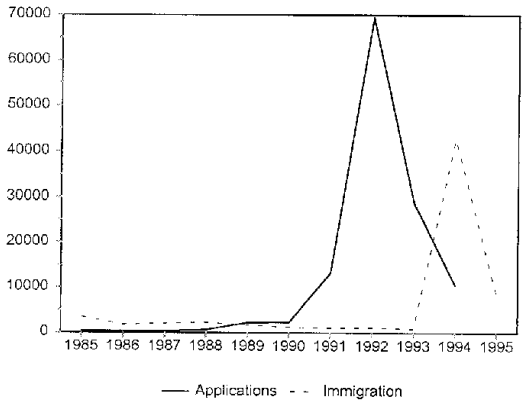


Figure 48. *Applications and immigration into Sweden from Iran, 1985-1995*

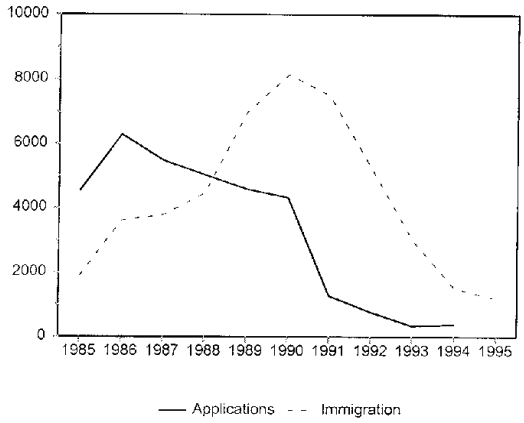


Figure 49. *Applications and immigration into Sweden from Chile, 1985-1995*

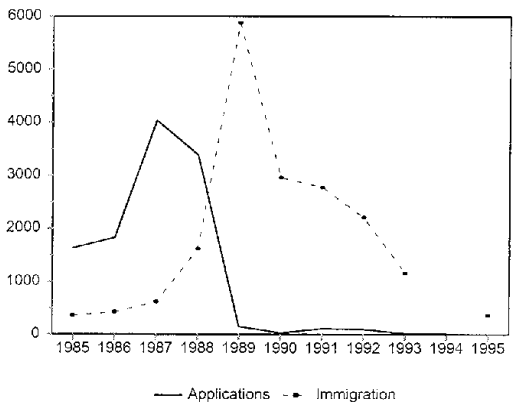


Table 33 gives the summary results of regressions of immigration on applications for the most important groups of asylum-seekers in Sweden. Here the two-year lag was tested as well, and included in the table.

Table 33. Classification of OLS regressions of immigration on asylum applications for Sweden

Strength of relationship	Contemporaneous relationship	One year lagged relationship	Two year lagged relationship
high ($R^2 > 0.75$)			Yugoslavia
middle ($0.75 > R^2 > 0.50$)	Ethiopia		Iran
low ($0.50 > R^2 > 0.25$)	Romania Turkey Uganda	Poland	Chile
very low/absent ($0.25 > R^2$)	Iraq Bulgaria Somalia Bangladesh Afghanistan	Lebanon Syria	

In contrasts to the results found in Germany or the Netherlands, we find in Sweden generally low associations between both statistics. The case of Yugoslavia is the highest association found. In the majority of the nationalities, the association is low or absent. In a number of cases negative coefficients were found between applications and immigration, which is very unlikely (e.g. Iraq).

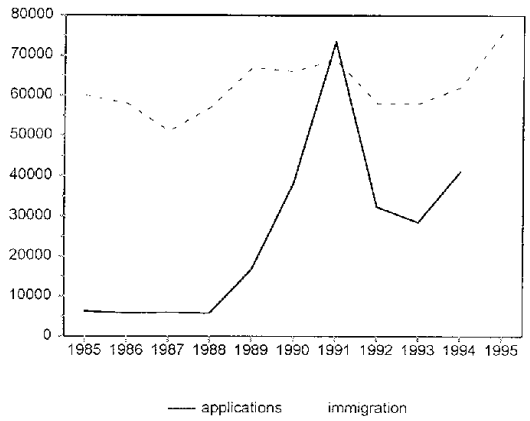
The Swedish example shows two things. First, the number of applications for asylum may be useful for short term projections of immigration in some cases. However, asylum-seekers from Yugoslavia were treated different from other asylum-seekers in many countries in Europe, including Sweden. many of them obtained immigrant status on the basis of special quota, or special decisions on humanitarian grounds. For instance, in Sweden, many former Yugoslavians entered the country as refugees, and obtained a status on humanitarian grounds (Secretariat of the Inter-governmental Consultations on Asylum, Refugee and Migration Policies in Europe, North America and Australia, 1994). This makes immigration projections based on asylum applications possible to the extent that these political decisions can be anticipated or predicted. Unfortunately, in general, these types of decisions are difficult to foresee. A second observation based on the Swedish results is that the strong relationships between asylum and immigration found for Germany or the Netherlands does not always hold for other countries. In conclusion for Sweden, the empirical basis for using statistics on asylum for improving immigration statistics is again not very strong

6.2.4. The United Kingdom

Data on immigration in the United Kingdom come from the International Passenger Survey (IPS). The accuracy of these data is not very large, especially for smaller groups of immigrants. The statistics in the Eurostat database are rounded to the nearest thousand, which makes a statistical analysis as that performed for the other countries not feasible. Moreover, another problem hinders the proper analysis of both time series. There is no separate immigration register in the UK. The numbers of asylum seekers who obtain a legal status are not recorded in the immigration statistics of the IPS. In general, asylum seekers

will not show up in the IPS survey as immigrants either. Therefore, comparing immigration statistics based on the IPS with statistics on asylum applications is comparing apples with pears: the statistics are just not linked in any way. Status holders will probably show up in the census and in the National Health Service Central Register (NHSCR) eventually, but not in annual immigration register (Van Imhoff *et al*, 1994). *Figure 50* shows the time series on applications and immigration for the United Kingdom. The increase in the number of applications in the early 1990s had some effect on the number of immigrants according to the IPS (the R^2 of the regression of total immigrants on applications in the same year is 0.45, and the lagged relationship is as little as 0.06). *Annex 4* presents the time series of both applications and immigration for the most important countries of citizenship asking for asylum in the United Kingdom.

Figure 50. *Applications for asylum and immigration from non-EEA nationalities into the UK, 1985-1995*



6.3 | Conclusions on the usefulness of asylum statistics for projecting immigration

This analysis has shown that for two out of four countries included in the analysis (the Netherlands and Germany) there is a close correspondence between the number of applications for asylum and the number of immigrants of that nationality *in the same year*, or for a limited number of cases, in the following year. This result limits the use of application statistics for immigration projection purposes for longer time periods. For *nowcasts* the number of applications may be useful however. In Sweden, where in general the relationships between applications and immigration is weak, we found in the case of immigration of Yugoslavian foreigners that this could have been predicted by the number of applications two years before. This case pertains to a very special situation however, where a political decision allowed the permission to stay of a large group of refugees already present in the country. Again, this is not a strong case for improving projections on immigration.

Of the five key countries, used throughout this report, data for the UK and Portugal on immigration do not allow a more detailed analysis at this point. In the UK the IPS survey is not the proper data source to estimate the consequences of the number of asylum seekers entering the country for immigration. However, it remains unclear what other sources should be used in this situation.

7. The Eurostat database: Possibilities and constraints

7.1 | Introduction

The study presented in this report is largely based on the Eurostat database on international migration flows, stocks of foreign population and asylum seekers (the 1997 version). At present, this database is the most comprehensive available for consistent analyses of migration trends in the European Union. In this section, a detailed description is given of the information included in this database.

7.2 | International migration flows

The Eurostat database provides several tables on international migration flows in which different characteristics of migrants are given. In general, the following information is included:

- immigration/emigration by citizenship and gender
- immigration/emigration by previous/next country and gender
- immigration/emigration by age groups, gender and broad groups of citizenship (totals, nationals, EU12-foreigners and non-EU12-foreigners)
- immigration by citizenship, gender and reason for migration

In principle, data on international migration are available for all EEA countries and for Switzerland from 1985 onwards. For various countries, however, more or less data are missing (see *Tables 34 to 40* below). While most details are available for the Scandinavian countries, the Netherlands and the United Kingdom, flows are completely missing for Austria and Liechtenstein. Data on immigration by reason is only available for France and the United Kingdom. For all tables mentioned not all details are included for all countries. The breakdown by age, for instance, is for some countries only available for nationals and totals but not for EU12-foreigners and non-EU12 foreigners. Less detailed tables are available for a longer period of time (from 1960 onwards). These tables, however, are only available for a restricted number of countries. Most complete historical series are included for Denmark, the Netherlands and Sweden.

Data on immigration by citizenship, sex and reason are only available for France and the United Kingdom. For France information is included on labour, family, and asylum migration for several years. In different years, however, different types of migrants are mentioned and only information for non-nationals is available. Also different data sources are used to determine different types of migrants. Therefore, comparisons are difficult to make. For the UK information is included on labour, family, student, and other reasons for migration. These numbers, like all data on migration to the UK, are obtained from the International Passenger Survey (IPS). The IPS conduct a survey among international migrants entering or leaving the UK. Consequently, these data give only rough estimates of reasons for migration.

7.3 | Stocks of foreign population

The Eurostat database on stocks of foreign population provides information on the size of the population by nationality, as well as naturalisations. The sources of stock data are usually population registers or censuses. Register-based data tend to have a higher coverage of the total population compared to census-based data, but due to under registration of foreign emigrants, stocks of foreign populations may be overestimated. Another drawback of the Eurostat database is that only registered migrants are included. Temporary and illegal migrants, for example, are not included in the database, but may have effects on the de facto population in a country. Also the fact that the procedures for asylum seekers to become immigrants vary widely between countries, may obscure the trends in immigration, especially as far as comparisons between countries are concerned.

In principle data on stocks of foreign population are included from 1985 onwards. For the analyses in the present study, however, time series for a longer period of time were needed, as the short term trend analyses had to few degrees of freedom to include an additional variable in the economic model with the optimal fit. Therefore, longer time series were used from the OECD but for these series no breakdown by nationality was possible. A finer breakdown by nationality, however, seems by far preferable. Therefore, in the long run, the Eurostat database on stocks of foreign population will have good prospects considering studies aimed to link migration flows and stocks.

7.4 | Asylum applications

In Chapter 6 the relationships between asylum applications and immigration was studied for the Netherlands, Germany, Sweden and the UK. Data on asylum applications are in general available as of 1985, and, except for Ireland, these data are broken down by citizenship (*Table 39*). In a number of countries the breakdown by citizenship is not available for all years (e.g. Belgium, Greece, Italy, Spain). In the analysis, time series up to 1994 were available and used. Data on asylum decisions have not been used in the analyses in this report. They are more complicated, since apart from citizenship, a breakdown by type of outcome of the decision is necessary (total decisions; total granted Geneva Convention status; total Geneva Convention plus other statuses; rejected, withdrawn). For most countries at least for a number of years this information is available, but only for a limited number of countries a complete series from 1985 has been collected. In most countries at the time of analysis the series end in 1993.

7.5 | An Evaluation of the Eurostat database for the present analyses

The study presented in this report was largely based on the Eurostat databases (1997 version) on international migration flows, stocks of foreign population and asylum seekers. At present, this database is the most comprehensive available for consistent analyses of migration trends in the European Union. For this study, however, the full potential of the Eurostat database has not been explored yet: Not all data available have been used and analyses have been carried out for a limited number of countries only. In this section, further possibilities and constraints of the Eurostat database will be described concerning the empirical analyses carried out in this study. In the 1997 version of the database migration flows are available in general up to 1993 and asylum statistics up to 1994. In the meantime, since 1997 additional data have become available. Some of these data were used in the analysis, but in general they have not been included here.

7.5.1. *International migration flows*

The Eurostat database provides several tables on international migration flows in which different characteristics of migrants are given. In general, the following tables are included:

- immigration/emigration by citizenship and gender
- immigration/emigration by previous/next country and gender
- immigration/emigration by age groups, gender and broad groups of citizenship (totals, nationals, EU12-foreigners and non-EU12-foreigners)
- immigration by citizenship, gender and reason for migration

In principle, data are available from 1985 onwards. For various countries, however, more or less data are missing. While most details are available for the Scandinavian countries, the Netherlands and the United Kingdom, flows are completely missing for Austria and Liechtenstein. Data on immigration by reason is only available for France and the United Kingdom. For all tables mentioned not all details are included for all countries. The breakdown by age, for instance, is for some countries only available for nationals and totals but not for EU12-foreigners and non-EU12 foreigners. For Austria, comprehensive migration statistics have started only recently with 1996 as the first year of reporting . Less detailed tables are available for a longer period of time (from 1960 onwards). These tables, however, are only available for a restricted number of countries. Most complete historical series are included for Denmark, the Netherlands and Sweden.

As short term time trends are available for most countries of the European Union, analyses identical to those described in this report, can be carried out for countries not involved in the present study as well (See the section on recommendations below). As many more different citizenships are distinguished in the database than studied here, also an extended number of different nationalities could be taken into account. The number of nationalities distinguished differs between countries, and within countries between years. In recent years up to 160 to 190 different citizenships are distinguished in the tables (more or less the same number for immigration and emigration).

Data on immigration by citizenship, sex and reason are only available for France and the United Kingdom. For France information is included on labour, family, and asylum migration for several years. In different years, however, different types of migrants are mentioned and only information for non-nationals is available. Also different data sources are used to determine different types of migrants, which makes comparisons difficult to make. For the UK information is included on labour, family, student, and other reasons for migration. These numbers, like all data on migration to the UK, are obtained from the International Passenger Survey (IPS). The IPS conduct a survey among international migrants entering or leaving the UK. Consequently, these data give only rough estimates of the reasons for migration. The prospects for analyses of immigration by reason are not very promising, though. In stead of using explicit data on immigration by reason, however, migration by age may be taken as a proxy for migration by reason. Immigration of elderly non-nationals, for instance, may be taken as a proxy for retirement migration. Likewise, migrants in the age groups 15-24 may be used as a proxy for student migration. To define different age groups as proxies for different reasons of migration, however, is not straightforward. Different proxies may be needed for different countries. Depending on the educational system of a country, for instance, different age groups may be needed to reflect migration flows for study considerations.

7.5.2. Stocks of foreign population

The Eurostat database on stocks of foreign population provides information on the size of the population by nationality, as well as naturalisations. The sources of stock data are usually population registers or censuses. Register-based data tend to have a higher coverage of the total population compared to census-based data, but due to under-registration of foreign emigrants, stocks of foreign populations may be overestimated. Another drawback of the Eurostat database is that only registered migrants are included. Temporary and illegal migrants, for example, are not included in the database, but may have effects on the de facto population in a country. Also the fact that the procedures for asylum seekers to become immigrants vary widely between countries, may obscure the trends in immigration, especially as far as comparisons between countries are concerned.

In principle data on stocks of foreign population are included from 1985 onwards. For the analyses in the present study, however, time series for a longer period of time were needed, as the short term trend analyses had to few degrees of freedom to include an additional variable in the economic model with the optimal fit. Therefore, longer time series were used from the OECD but for these series no breakdown by nationality was possible. A finer breakdown by nationality, however, seems by far preferable. Therefore, in the long run, the Eurostat database on stocks of foreign population will have good prospects considering studies aimed to link migration flows and stocks.

7.5.3. Asylum applications

In general, asylum statistics in the Eurostat database cover asylum applications as well as decisions. Here, only applications have been taken into account. The data on applications cover total numbers of asylum applicants by individual countries of citizenship, but not decomposed by age of sex. In general, the data cover the period 1985-1994. Some countries present data for all countries of citizenship having applicants, others present data on groups of citizenships, whenever numbers are small. In some countries the numbers pertain to individual applicants, in others the basis is the household. The table in the section on recommendations presents a brief overview of the potentials of the database for additional analyses involving asylum applications.

Table 34. Migration by sex and citizenship

Country	Immigration	Emigration
Austria	no data available	no data available
Belgium	SC, 1985-1993[1]	SC, 1985-1993
Denmark	SC, 1985-1993	SC, 1985-1993
Finland	S[2]C, 1985-1993	S[2]C, 1985-1993
France	[3]C[4], 1985-1993	no data available
Germany	SC, 1985-1993	SC, 1985-1993
Greece	SC, 1985-1993	no data available
Iceland	SC, 1985-1993	SC, 1985-1993
Ireland	SC[5],1987-1993	S [9], 1987-1993
Italy	S[6]C, 1985-1992	S[6]C[10], 1985-1992
Liechtenstein	no data available	no data available
Luxembourg	SC, 1987-1993[7]	SC, 1987-1993[7]
Netherlands	SC, 1985-1993	SC, 1985-1993
Norway	SC, 1985-1993	SC, 1985-1993
Portugal	SC[4],1992-1993	SC[11], 1985-1993[12]
Spain	SC[8],1985-1993	SC[13], 1985-1993
Sweden	SC, 1985-1993	SC, 1985-1993
United Kingdom	SC, 1985-1993	SC, 1985-1993
Switserland	SC, 1985-1993	SC, 1985-1993

1 data available for males and females (S) and different (groups of) citizenships (C), for the period 1985-1993. In general, data were also collected for 1994 and 1995. At the time of the study, however, those data were not yet implemented in the database. Only limited information was available for 1994 and 1995.
2 1985-1991: breakdown by sex only for citizenship = total
3 no breakdown by sex
4 citizenship = non nationals only
5 1987-1990: citizenship = totals only
6 breakdown by sex only for 1989-1991
7 no data available for 1991
8 1985-1987: citizenship = totals and nationals only; 1985-1986: no breakdown by sex
9 no breakdown by citizenship
10 1985-1988: citizenship = totals and nationals only
11 1985-1989: citizenship = totals and nationals only; 1992-1993: citizenship = non nationals only
12 no data available for 1990-1991
13 citizenship = nationals only

Table 35. Migration by sex and previous/next country

Country	Immigration by previous country	Emigration by next country
Austria	no data available	no data available
Belgium	SP[1], 1985-1993[2]	SN[1], 1985-1993
Denmark	SP, 1985-1993	SN, 1985-1993
Finland	SP, 1985-1993	SN, 1985-1993
France	no data available	no data available
Germany	SP, 1985-1993	SN, 1985-1993
Greece	SP, 1985-1993[3]	no data available
Iceland	SP, 1985-1993	SN, 1985-1993
Ireland	SP[4], 1987-1993	SN, 1987-1993
Italy	S[5]P, 1985-1992	S[5]N, 1985-1992
Liechtenstein	no data available	no data available
Luxembourg	no data available	no data available
Netherlands	SP, 1985-1993	SN, 1985-1993
Norway	SP, 1985-1993	SN, 1985-1993
Portugal	SP[6], 1992-1993	SN, 1985-1993
Spain	S[7]P, 1985-1993	S[8]N[9], 1985-1993
Sweden	SP, 1985-1993	SN, 1985-1993
United Kingdom	SP[10], 1985-1993	SN, 1985-1993
Switserland	no data available	no data available

1 data available for males and females (S) and different (groups of) previous countries (P) or next countries (N), for the period 1985-1993. In general, data were also collected for 1994 and 1995. At the time of the study, however, those data were not yet implemented in the database. Only limited information was available for 1994 and 1995.
2 1992: no breakdown by previous country; 1993: breakdown by previous country for Belgium nationals only
3 1993: breakdown by sex only for previous country = total
4 previous country = total, Europe and UK only
5 breakdown by sex only for previous country = total for 1989-1991
6 breakdown by previous country for non nationals only
7 breakdown by sex available for 1988-1993; for 1987 breakdown by sex only for previous country = total
8 breakdown by sex available for 1991-1993; for 1985-1990 some details available
9 breakdown by next country only available for nationals
10 provisional data rounded to the nearest thousand

Table 36. Migration by sex, citizenship, and age

Country	Immigration[1]	Emigration
Austria	no data available	no data available
Belgium	S[2]CA[3], 1988-1993	S[2]CA[3], 1989-1993
Denmark	SCA[4], 1985-1993	SCA[4], 1985-1993
Finland	SCA, 1985-1993	SCA, 1985-1993
France	no data available	no data available
Germany	SC[5]A[6], 1985-1993	SC[7]A[6], 1985-1993
Greece	S[8]CA, 1985-1993	no data available
Iceland	SC[9]A, 1985-1993	SC[9]A, 1985-1993
Ireland	SC[10]A[11], 1987-1993	SA[11], 1987-1993
Italy	SCA[12], 1985-1991	SCA[12], 1989-1991
Liechtenstein	no data available	no data available
Luxembourg	SCA, 1987-1991	SCA, 1987-1991
Netherlands	SCA, 1985-1993	SCA, 1985-1993
Norway	SCA, 1985-1993	SCA, 1985-1993
Portugal	SC[13]A, 1992	SC[14]A[15], 1985-1989; 1992
Spain	SCA[16], 1985-1993	SC[17]A[18], 1985-1993
Sweden	SCA[19], 1987-1993	SCA[19], 1985-1993
United Kingdom	SCA[20], 1985-1993	SCA, 1985-1993
Switserland	SC[21]A, 1985-1993	SC[21]A, 1985-1993

1 In general, data were available for males and females (S), for groups of citizenships (C): totals, nationals, EU12-foreigners and non EU12-foreigners, and for 5 year age groups up to 65-69, 70-79, 80+ (A), for the period 1985-1993. Data for 1994 and 1995 were also collected but were not available at the time of the study.

2 1988: breakdown by age (5 year age groups) and sex for citizenship = totals only; breakdown by sex, citizenship and age only available for 1992; for the remaining years breakdown by age and citizenship available for sex = total; age groups: 0-14, 15-19, ..., 60+

3 breakdown by age: some details available

4 breakdown by age up to 60+

5 1985-1987: breakdown by age only for citizenship = totals and nationals

6 different age groups: 1985-1987: 0-17, 18-24, 25-39, 40-49, 50-64, 65+; 1988-1993: 0-17, 18-24, 25-49, 50-64, 65+

7 1985-1993: breakdown by age only for citizenship = totals and nationals

8 breakdown by sex only available for 1992-1993

9 breakdown by citizenship only for 1993

10 breakdown by citizenship only for 1991-1993

11 5 year age groups available for 1991-1992; for 1987-1990; 1993: different age groups: 0-14, 15-24, 25-44, 45-64, 65+

12 breakdown by sex and age only available for 1990-1991 for citizenship = totals and nationals

13 citizenship = non nationals only

14 citizenship = nationals only for 1985-1989

15 1992: different age groups:

16 1985-1987: only some details available; 1988: different age groups: 0-15, 15-24, 25-34, 35-44, 45-54, 55-

64, 65+

17 citizenship = nationals only

18 different age groups:

19 1992: breakdown by age only for citizenship = totals and nationals; 1993: no breakdown by age

20 provisional data rounded to the nearest thousand

21 breakdown by sex and age only available for citizenship = totals and nationals

Table 37. Migration by sex

Country	Immigration	Emigration
Austria	no data available	no data available
Belgium	S, 1980-1994[1]	S[2], 1980-1994
Denmark	S, 1960-1993[3]	S, 1960-1993[3]
Finland	S, 1960-1993	S, 1960-1993
France	no data available	no data available
Germany	no data available	no data available
Greece	S, 1968-1975, 1985-1993	S, 1961-1976
Iceland	S, 1980-1993	S, 1983-1993
Ireland	no data available	no data available
Italy	no data available	no data available
Liechtenstein	no data available	no data available
Luxembourg	no data available	no data available
Netherlands	S, 1960-1993	S, 1960-1993
Norway	S, 1980-1993	S, 1980-1993
Portugal	S, 1992-1993	S, 1960-1994[4]
Spain	no data available	no data available
Sweden	S, 1960-1993[5]	S, 1960-1993[5]
United Kingdom	S, 1964-1993[6]	S, 1975-1993
Switserland	no data available	no data available

1 data available for males and females (S) for the period 1980-1994.
2 unknown destinations are excluded
3 no data available for 1970
4 no data available for 1989-1991; provisional data available for 1992-1994
5 no data available for 1992
6 1964-1974: only data for totals and nationals

Table 38. Migration by age

Country	Immigration	Emigration
Austria	no data available	no data available
Belgium	A[1], 1988-1994	A, 1989-1994
Denmark	A, 1960-1993[2]	A, 1960-1993[2]
Finland	A, 1980-1992	A, 1980-1992
France	no data available	no data available
Germany	no data available	no data available
Greece	no data available	no data available
Iceland	A, 1980-1993	A, 1980-1993
Ireland	no data available	no data available
Italy	no data available	no data available
Liechtenstein	no data available	no data available
Luxembourg	no data available	no data available
Netherlands	A, 1960-1993	A, 1960-1993
Norway	A, 1980-1993	A, 1980-1993
Portugal	A, 1992,1994	A, 1980-1988
Spain	no data available	no data available
Sweden	A, 1961-1993	A, 1961-1993
United Kingdom	A, 1975-1993	A, 1975-1993
Switserland	no data available	no data available

[1] data available for broad age groups: 0-14, 15-24, 25-39, 40-59, 60+ and total, for the period 1988-1994.
[2] no data available for 1969-1970 (immigration), and 1970 (emigration)

Table 39. Asylum applications by citizenship

Country	Applications	Decisions on applications[9]
Austria	C[1], 1985-1994	D,G,T,R, 1985-1993
Belgium	C, 1985-1994[2]	D,G,T,R,W, 1988-1993
Denmark	C, 1985-1994[3]	G[10],T[11], 1985-1993
Finland	C, 1985-1994[4]	D,G,T,R,W, 1988-1993[12]
France	C, 1985-1994	D[13],T,R[13], 1985-1994
Germany	C, 1985-1994[3]	D,G,T,R,W[14], 1985-1993
Greece	C, 1985-1993[5]	D,G,T,R, 1990, 1992-1993[15]
Iceland	C, 1987, 1989-1994	D,G,T,R,W, 1987-1993
Ireland	1987-1994[6]	D,G,T,R,W, 1991-1994[6]
Italy	C, 1989-1994[4]	D,G,T,R,W[16], 1985-1993
Liechtenstein	no data available	no data available
Luxembourg	C, 1985-1993	D,G,T,R,W, 1986-1993[17]
Netherlands	C, 1985-1994	D,G,T,R, 1985-1993
Norway	C, 1985-1994[3]	D,G,T,R,W[18], 1985-1994[19]
Portugal	C, 1985-1994	G,T, 1985-1991
Spain	C, 1985-1994[2]	D,T,R[20], 1985-1993
Sweden	C, 1985-1994	G,T, 1985-1994[21]
United Kingdom	C, 1985-1994[7]	D,G,T,R,W[22], 1985-1993
Switserland	C, 1985-1994[8]	D,G,T,R,W, 1988-1993[23]

1 data available by citizenship for the period 1985-1994
2 1985-1987: no breakdown by citizenship; 1994: only some details on citizenship available
3 1994: only some details on citizenship available
4 1985-1988: no breakdown by citizenship; 1989 and 1994: only some details on citizenship available
5 1985-1991: no breakdown by citizenship
6 no breakdown by citizenship
7 citizenship = unknown for a sizeable part of the applications
8 1993-1994: only some details on citizenship available
9 D: total decisions (total granted and rejections); G: Geneva Convention status; T: total granted (Convention granted and other statuses); R: rejections; W: withdrawn
10 only for citizenship = total
11 1985-1987: no breakdown by citizenship
12 1988-1990: no breakdown by citizenship
13 1985-1989: no breakdown by citizenship
14 1992: no breakdown by citizenship for D,R; no data available on W; 1993: no breakdown by citizenship for D,R,W
15 1992: only data for C,T; 1993: D,R: no breakdown by citizenship
16 1985-1990, 1992: no data available on W
17 1986-1991: no breakdown by citizenship; 1987-1988: no data on W; 1988-1989: no data on G
18 W: only available for 1994
19 1985-1993: no breakdown by citizenship
20 1985-1990: D,R: no breakdown by citizenship
21 G: no breakdown by citizenship; 1985-1986: no data on G; 1993: also totals on D,R,W
22 1985-1988: W: no breakdown by citizenship; 1991-1992: no data on W
23 1985-1987: no breakdown by citizenship

Table 40. Overview of analyses

Country	Eco-immi cit	Eco+stocks[8]	Elderly migr	Asylum- immi
Austria				
Belgium	**1960-91(C[1]) 1980-94(S[2]) 1988-94(A[3]) s[4]: 1985-93**	**1982-1993**	**1985-1993, 60+**	**1985-1994, C**
Denmark	**1960-93 (C,S,A) s: 1985-93**	**1983-1993**	1985-1993, 60+	**1985-1994, C**
Finland	**1980-92(C,A) 1960-93(S) s: 1985-93**	**1986-1993**	1985-1993, 60+	**1985-1994, C**
France	**s: 1985-93 (nn[5])**			**1985-1993, C**
Germany	1966-93(C,S) s: 1985-95	1981-1995	**1985-1993, 65+**	1985-1995, C
Greece	**1968-1975 (CS) s: 1985-1993 (CS)**		**1985-1993, 60+**	**1985-1993, C**
Iceland	**1980-93(SA) s: 1985-93(CS)**		**1985-1993, 60+**	
Ireland	**s: 1985-1993 (CS)**	**1984-1993**		
Italy	**s: 1985-1992 (C)**			
Liechtenstein				
Luxembourg	**s: 1987-1993 (CS)**			
Netherlands	1968-95(C,S,A) s: 1985-95	1968-1995	1985-1993, 60+	1985-1996, C
Norway	**1980-93(SA) s: 1985-93(CS)**	**1981-1993**	**1985-1993, 60+**	**1985-1993, C**
Portugal				
Spain	**1980-91(t[6],n[7]) s: 1985-93(CS)**	**1981-1993**	**1985-1993, 65+**	**1985-1993, C**
Sweden	1968-95(C,S,A) s: 1985-95	1981-1995	1985-1993, 60+	1985-1995, C
United Kingdom	1964-93(C,S,A) s: 1985-95	1985-1995		1985-1995
Switzerland	**s: 1985-1993 (CS)**		**1985-1993, 60+**	**1985-1993, C**

1 breakdown by citizenship
2 breakdown by sex
3 breakdown by age groups
4 short term
5 non-nationals
6 totals
7 nationals
8 analysis based on OECD stock data of non-nationals and immigration of non-nationals

8. Summary and conclusions

8.1 | Introduction

In recent history, international migration has become one of the key components of population projections. This applies especially to the countries of the European Union, where population growth due to natural increase is nowadays very small or even negative. As there are many uncertainties surrounding migration forecasts, however, it is very difficult to project future international migration developments. For this reason, Eurostat has launched a research programme with the aim of improving international migration assumptions in national forecasts within Europe. This programme covers several studies. In the first study of the programme (part I), carried out by the Migration Research Unit of the University College London (UCL) in 1994-1995, recent developments and current practice in projecting international migration in the member states of the EU and EFTA countries were examined. Also a conceptual model for the analysis of international migration was proposed, accompanied by a typology of migrant groups. In the present study, part II of the programme, a number of empirical issues were studied which followed from the conceptual model. The study was largely based on the Eurostat database on international migration and asylum. As this database is still 'under construction', part II of the programme can also be considered a first analytical approach to the Eurostat database.

In this final chapter of the report, the main conclusions of the study and of the potentials of the Eurostat database will be summarized and evaluated. In the final section, recommendations for future research in the field of migration projections, to be carried out in Part III of the programme, will be presented.

8.2 | The UCL model for international migration: from theory to empirical assessment

Despite its key role in population growth, migration is very difficult to project. Much more than the other demographic components, migration depends on short-term developments and policy decisions, which may result in huge differences in migration intensities from one year to another. In the last decades, for example, international migration flows into the European Union have been very closely related to specific historical events, such as the reunification of Germany, the fall of the Iron Curtain and the war in former Yugoslavia. In response to those large immigration flows, in many countries immigration policies have become increasingly restrictive, resulting in considerable decreases in immigration levels. Due to these huge differences in migration levels, future developments are seldom continuations of the past and therefore extrapolation techniques are only of limited value in forecasting international migration. More promising prospects are foreseen for scenario analysis, in which the reasons and conditions behind observed migration flows may play an important role. By now, causes of international migration are well studied and there is more or less agreement with regard to the most important factors determining migration flows between countries. Relatively few attempts have been made however, to link these theoretical considerations with empirical data.

The conceptual model developed by UCL provides a comprehensive framework for the identification and analysis of international migration flows. In principle, this model could be used as a point of departure for the empirical analysis. Nevertheless, empirical specification and

validation of the conceptual model is hampered by several constraints, of which data availability and quality is probably the most serious one. For the near future it seems impossible to satisfy the full needs of the UCL-model. It is possible, however, to assess some parts of the model, despite the restrictions imposed by the data. In particular, the following analyses were conducted within the framework of the overall model.

1. The relationship between a number of economic indicators and immigration was studied
2. The impact of the size of the migration stock upon the size of immigration flows was taken into account as well, in addition to the effects of the economic indicators
3. The importance of elderly migration in international migration was empirically evaluated, and some future trends sketched briefly
4. The impact of the extension of the European Union with Spain and Portugal in 1986 on migration flows within Europe was examined
5. The relationship between applications for asylum and immigration statistics was dealt with.

By taking into account international migration flows in various member states of the European Union, an attempt has been made to discern general EU migration patterns from country-specific trends. Analyses have been carried out for a subset of countries, covering the dimensions northern/southern, 'big'/'small' and data rich/poor: Germany, the Netherlands, Portugal, Sweden, and the United Kingdom. In some specific analyses other countries have been taken into account as well. Below we will highlight the main findings of each analysis.

8.2.1. Economic indicators

One of the most important factors underlying demographic processes is economic growth. This applies especially to migration: Migrants are often attracted to regions of rapid economic growth whereas, less prosperous regions tend to receive few immigrants. In addition, some, although not all of these latter types of regions tend to experience relatively large emigration flows. Population trends do not simply respond to economic developments, however. Both trends are interrelated. Whereas economic changes may trigger demographic trends, population changes themselves may have an impact on economic developments. Although the relationship between migration and economic indicators is generally covered by demo-economic models, which take into account this two-sided relationship, for demographic forecasting these complex relationships are usually not taken into account. Therefore, in this study, attention was focussed on the influence of economic indicators upon international immigration and net migration and not *vice versa*.

The main question in this demo-economic analysis was: 'What is the correspondence between the economic business cycle and international migration patterns?' We have tried to establish robust relationships over time between economic indicators on the one hand and immigration flows or net migration patterns on the other. We investigated whether we could confirm the negative relationship between unemployment and immigration and the positive relationships between migration and annual variation in compensation (income) per worker or overall levels and annual change in gross domestic product per capita, respectively. Furthermore we tried to find out which of these economic indicators are the most effective in predicting migration behaviour. We also examined whether identical relationships were found in different countries.

The results of the analyses show the following results:

1. Some relationships between economic variables and migration do exist. Economic indicators are, however, only effective predictors of migration in some countries (the Netherlands, Germany and the United Kingdom), but not in others (Sweden and Portugal). The assumption is not valid for all EU countries
2. The nature of the relationships found differed between countries. Generally, unemployment turned out to be the key economic indicator in the Netherlands, the UK and Germany, but in a number of cases other variables, such as the relative level of GDP per capita, or compensation per worker, dropped in as well or instead. Therefore, a uniform robust relationship across countries was not feasible.
3. Immigration groups (segmented by nationality) react differently in their sensibility for economic indicators. Nationals and immigrants from EU-countries are generally less affected by economic indicators, although not totally insensitive. Tentatively, one may conclude that the lower the degree of economic development in the country of origin, the more susceptible one is for economic circumstances. Even within groups of immigrants from developing countries, however, there are large variations in the impact of economic indicators.
4. The elasticity of the most robust economic indicator, unemployment shows a large variation across countries and across nationalities of immigrant groups within one country. Based on the long term analysis a best guess of an elasticity, defined as the percentage change in immigration as a result of a one per cent point change in unemployment would be -4 for the Netherlands and Germany, and -2 for the United Kingdom. However, the short term results are too unreliable to substantiate this conclusion.
5. The effect of unemployment on net migration is much less pronounced. Net migration is the result of two largely different processes: immigration, which is quite sensitive to unemployment in a number of countries, and emigration, which has, according to the literature, a much more complex relationship with unemployment.

Although a number of relationships between immigration and economic indicators do exist, some qualifications have to be made.

1. The effect of a linear increasing trend in migration —a frequently used covariate in time series analysis, comparable to the use of an intercept in linear cross-sectional regression— turned out to be important in a number of countries and for a number of nationalities within countries.
2. As this variable captures every cause that develops linearly over time, such as improved communication networks and travel opportunities, a greater global awareness and a general increase in the world population, especially in the developing countries, this effect is difficult to interpret in a direct way.
3. The influence of dummy variables relating to policy interventions appeared to be of prime importance. The larger shifts in immigration were often the result of policy interventions and consequently policy variables have to be taken into account as well in order to isolate the effects of economic indicators.
4. Models without policy variables or —whenever important—a linear trend variable may produce biased results for economic indicators. Because of these qualifications it is difficult to use economic information unconditionally in projecting international migration. The model should always reflect the country-specific developments.

8.2.2. Networks: the size of the migrant stock

Economic reasons are not the only trigger for international migration. Since after the oil crisis of 1972/73 the importance of labour migration declined, other reasons for migration, among which family reunification and formation, gained significance. Many of these other reasons are linked with social networks: the linkages between migrant populations in the country of destination with the population in the country of origin. At the macro level, the existence of networks, which may be indicated by the size of the migrant population in the country of destination, is another important factor behind international migration flows. Therefore, it was examined whether the size of the migrant population in the country of destination could add some valuable information to the economic variables in explaining international migration trends.

The addition of the size of foreign populations to the economic models produced mixed results. In some countries the variable could be interpreted as one of the factors behind the observed linear trend in migration. In the Netherlands, for instance, the size of the stock of foreign population turned out to be an alternative for the linear trend in migration included in the economic models. The autonomous increase in immigration in the Netherlands could therefore be interpreted as the result of the pull effect of the foreign population in the Netherlands. In Germany, on the other hand, addition of the size of foreign populations *added* something to the linear trend. In the other countries no relationship was found.

Again a qualification has to be made as the models pertain to the total foreign population stock and migration flows. The net migration models pertain even to total net migration, including nationals. Therefore, a finer breakdown into smaller (groups of) nationalities might change these results. At present, however, this type of analysis could not be carried out as the current time series on migrant stocks in the Eurostat database are too short to give reliable results.

8.2.3. Elderly migration

Over the last twenty years, the age structure of the European Union has changed substantially. Europe is ageing. People aged 60 years and older have seen their numbers rising as a result of the coming of age of larger cohorts. This process will continue with increased intensity after 2010, when the baby-boom generation born between 1946 and 1965 will reach retirement age. Not only the number of the elderly will increase, but the share of the elderly is also set to rise considerably. Traditionally, the role of elderly migration in international migration flows has been limited, though as elderly people used to migrate within the country in which they reside. In recent years, however, a new trend has emerged of international elderly migration. In particular the relatively sparsely populated regions with a pleasant climate and residential environment seem to be interesting regions for foreign retirees. Relevant questions to be asked, as well as the answers found in the analysis, are:

1. What share of international migration flows is attributable to the elderly?
   In the last decade, the share of elderly migration in the total immigration flows was still very moderate, in the range of two to five percent at most.
2. How has this share developed in the last 15 years?
   This share has not increased in recent years, but since the volume of immigration has increased substantially in the 1990s compared to the 1980s, the size of elderly immigration flows in absolute terms has grown substantially.
3. What was the development of the migration rate of the elderly in recent years?
   Emigration rates have not increased either and are in the order of 1 per 1000

inhabitants. Therefore we may conclude that at present elderly migration in the European Union is still not especially important.

A final question of relevance related to the future. What can be expected for the coming years?

Although the present trends give no indication of increased motivations for emigration, given the economic prospects of the elderly, in combination with spatial and environmental developments, it is not unlikely that migration behaviour of the elderly may change in the near future. Moreover, elderly migration will become more important, if only due to the ageing of the population. Simple projections of emigration, using time-invariant and age-specific migration probabilities, show that in the year 2025 the share of the elderly in the emigration has risen significantly in the Netherlands (from 5 to 9 percent), and Finland (from 3 to 6 percent). The size of foreign populations is increasing substantially in various countries and cohorts of migrant populations are ageing. This might have consequences for the migration pattern of the elderly, especially with respect to return migration. Some evidence was found that return migration is indeed an important component of elderly immigration. On the other hand, no support was found for more than average return migration for elderly non-nationals in the countries analysed. As presently the size of the elderly non-national populations is very small in most European countries, developments in elderly migration patterns are difficult to detect. In the next decades the ageing process will result in substantial larger categories of non-national elderly populations, which may be accompanied by new forms of elderly migration behaviour.

8.2.4. EU integration and migration

One of the main integrating elements of the European Union is the establishment of a European Common Market with free movement of capital, goods, and labour between all member states of the EU. As there are, in principle, no legal barriers for a EU citizen to move and live in another country within the Union, migration considerations have played, and will play, a role in discussions about enlargement of the EU. The EU started in 1958 with only six countries. Since then several countries have joined the EU to the total of 15 countries of today. For the future further enlargements are expected, as by now several Central and Eastern European countries are preparing to enter the Union. Although the establishment of a Common Market may have stimulated intra-EU migration from and to the (new) EU countries, in the earlier years of the EU this did not happen. At least not in terms of mass migration from manual workers from the rural low-income regions in the South to the urban industrial high-income regions in the North-West. Most mass migration in the 1960's and the 1970's originated from countries outside the EU (Fielding, 1993). Spain and Portugal entered the Union in 1986. An important question in this respect is whether intra-EU migration flows to and from these countries increased or remained stable after obtaining EU membership? Migration restrictions between Portugal and Spain on the one hand, and other EU-countries on the other were not lifted in 1986, but only in 1991. Therefore, if substantial effects were expected, they should become visible after 1991.

With respect to Spain some effects of emigration of Spanish nationals to other EU countries was observed, especially to Germany, but also to other EU countries. Migration into Spain from other EU countries, —which is primarily motivated for leisure and retirement reasons— has not increased markedly. However, some qualifications to these results are in order here. First, immigration into Germany of Spanish nationals has been rising steadily already since 1985, but since 1991 the rate of increase has gone up. Second, increased immigration to other EU countries is mainly (but not totally) caused by immigration to the UK, a finding which is based on very unreliable UK data. Third, increased immigration into the EU may also be viewed as substitution of migrants from Switzerland to EU-countries. Immigration of Spanish nationals into

Switzerland decreased sharply after 1990, by almost the same amount as the increase into EU countries after 1991, as a result of stricter immigration policy.

In the case of Portugal a substantial increase in emigration (from 10 thousand in 1992 to 30 thousand in 1995) of Portugese nationals to Germany was observed after 1992. Immigration to other EU-countries (excluding Spain, which is traditionally a large migration country of Portugal) increased substantially in 1993 and 1994 (from 5 to 11 thousand), but dropped thereafter to previous levels. Similar to the Spanish results, part of this increase into EU countries may be viewed as substitution from Switzerland to Germany, but not all. Emigration to Switzerland amounted to 20 thousand in 1990 and dropped to 10 thousand in 1995, whereas the increase observed in the numbers for Germany is about twice as large. Some increase in the size of immigration into Portugal after 1991 was observed as well, but this was not as large as for emigration. This result may also be explained with reference to the relatively underdeveloped status of Portugal: economic motivations will stimulate net out-migration to more developed countries, whereas immigration is primarily motivated by leisure and retirement reasons.

In conclusion we could state that the enlargement of the EU had positive effect upon intra-European migration with the countries involved, especially on emigration of Portugese and Spanish nationals to other EU countries. The effects found are flattered by the reduction in migration from the Iberian countries to Switzerland, but especially in the Portugese case, the increase in migration into the EU outweighs the decrease to Switzerland substantially.

8.2.5. Asylum applicants

The number of people seeking asylum in the EU member states grew steadily in the early 1990's. The relationship between asylum and immigration, however, is rather complex. Asylum seekers are not immigrants at the time of application, but they may, and often do, become immigrants at a later point in time. The procedures for an asylum applicant to become an immigrant vary widely between countries, due to different migration statistics, the existence of a population census or a register, legislation, and so on. Moreover, procedures may change in time, which makes comparisons over time and between countries difficult to make. Nevertheless, it is obvious that in the last decade, the large scale movements of refugees have become a major component of migration in various member states of the EU. Therefore, it is important to find out to what extent statistics on asylum seekers can be used for projections on migration.

Comparisons between statistics on asylum applications and immigrations have shown that there is a close correspondence between the number of applications and the number of immigrants for at least some countries (the Netherlands and Germany). The optimal relation between applications and immigration seems to be contemporaneous. Only for the Netherlands in a few instances a lagged relationship of one year was apparent. The use of application statistics for immigration projection purposes for longer time periods is therefore only limited. For *now casts,* on the other hand, the number of applications may be useful. In contrast to the Netherlands and Germany, in Sweden, the associations between both statistics were generally low or absent. Data for the UK and Portugal did not allow a detailed analysis.

8.3 | Recommendations for analysis and forecasting of international migration

Based on the results of the analyses of Part I and II, the following recommendations for additional research may be put forward. Note that carrying out all of these proposals would require a substantially larger budget than available for Part III:

1. A similar demo-economic analysis and an analysis of the relationships between stocks and flows as performed in Chapters 2 and 3, using updated time series in other countries: See the table 40 in Chapter 7.

2. Update of time series and analysis in the Netherlands, the United Kingdom, Sweden, Germany after an addition 4 years of data have been added to the current time series

3. The results of the Part II analyses show remarkable differences in results among countries. A more detailed study is needed, using secondary literature and data sources, to understand the reasons behind these differences.

4. Elderly migration should be decomposed according to nationality.

5. Analysis of selected time series of immigration by country of origin, and comparison of results with those by nationality.

6. Analysis of the most robust economic indicator, *unemployment*, for various countries, using LFS data. Inventory of availability of unemployment forecasts (OECD, other sources) that may be used in population projections.

7. Perform a sensitivity analysis of immigration, based on unemployment forecasts. First, on historical time series, second on future expectations of unemployment or feasible future unemployment rates. The basic question here is how to reduce forecasting errors by including additional information on unemployment.

8. Pilot study of the relationships between stocks and flows for individual citizenships, including stocks, migration, naturalisations, birth and death. Such a study is aimed at improving the quality of existing time migration time series, which may be useful for better migration assumptions and projections. This is a *pilot and a feasibility study*, since a large scale study of more countries and more nationalities is very time consuming and will not fit within a Part III or even Part IV study.

9. Based on the relationship between stocks and flows for individual nationalities as proposed in Chapter 7, performing a sensitivity analysis of future immigration using information on unemployment and stocks. Here, as in 3. the question is how to reduce forecasting errors using additional information.

10. A study of the assessment of the LFS as a source for estimation of (labour) migration and migrant populations.

11. In addition to analyses over time in immigration by citizenship, also trends in emigration by citizenship could be studied as well as immigration by previous country or emigration by next country of residence. It may be interesting to look at differences and similarities between migration by citizenship and next country. Analysis of trends in emigration by nationality and by country of destination for a number of countries, including evaluating the assessment of current statistics for these analysis.

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Appendix 1
The Netherlands

Asylum requests and immigration by nationality 1985-1995

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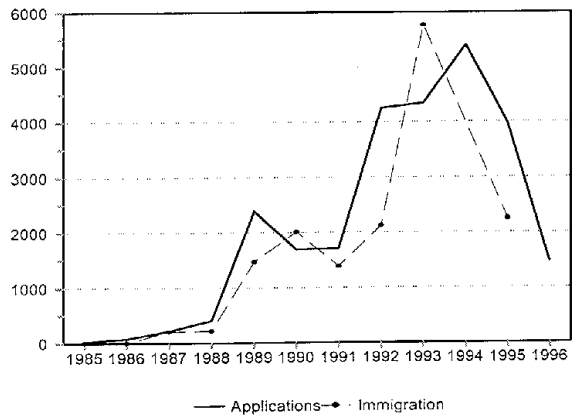

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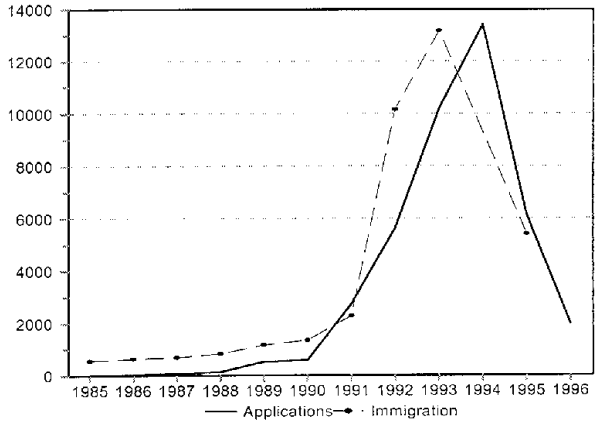

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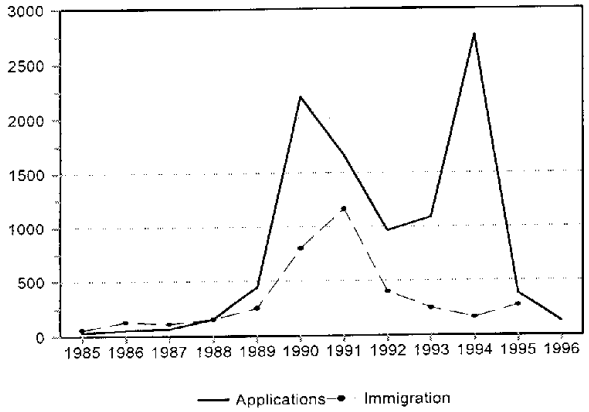

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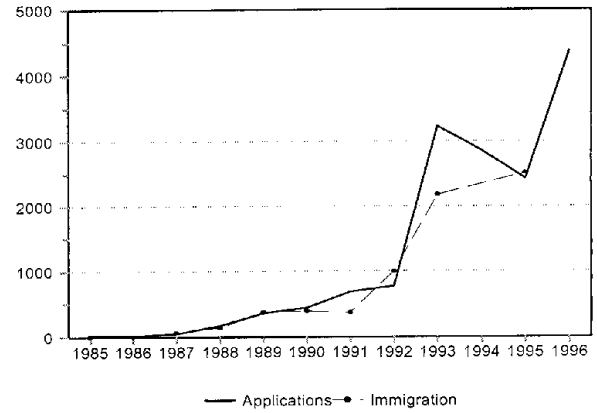

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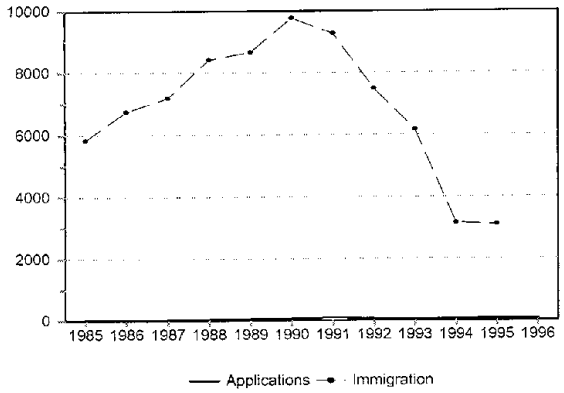

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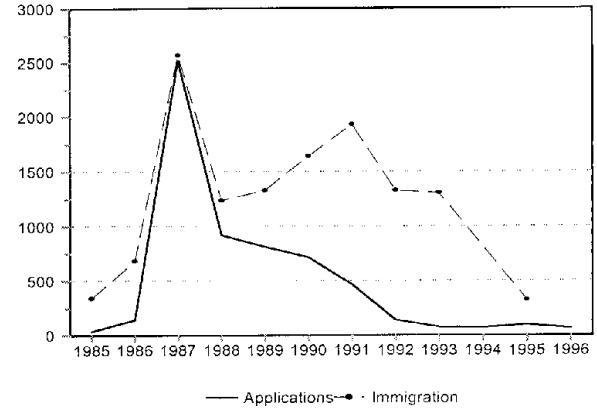

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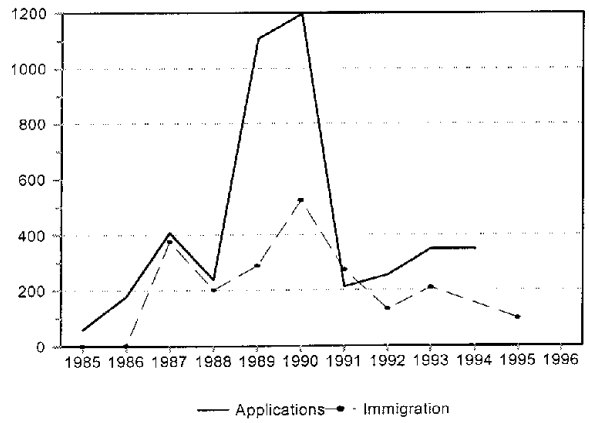

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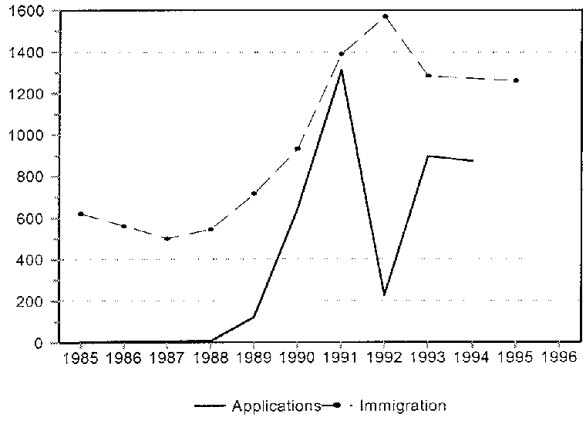

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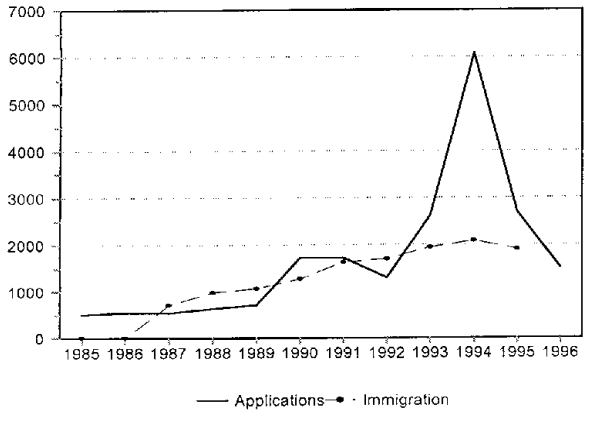

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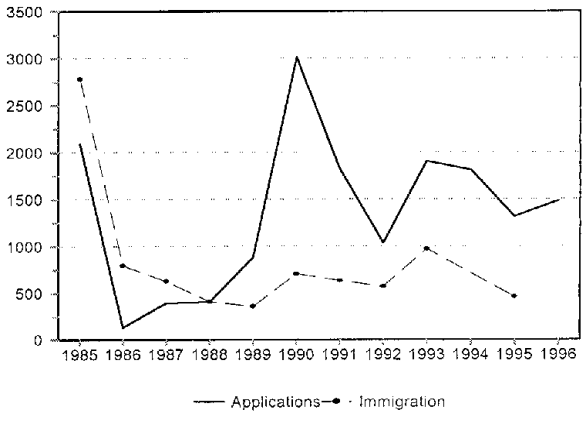

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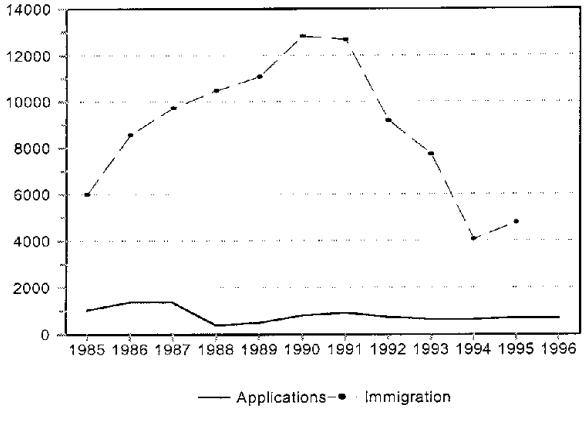

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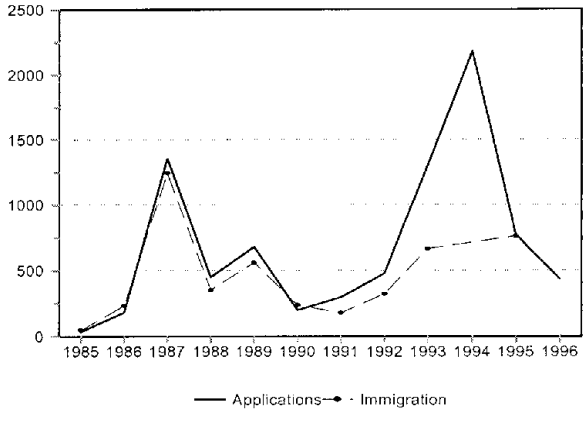

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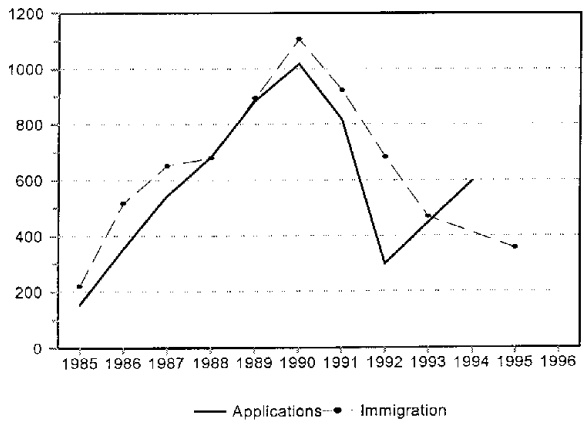

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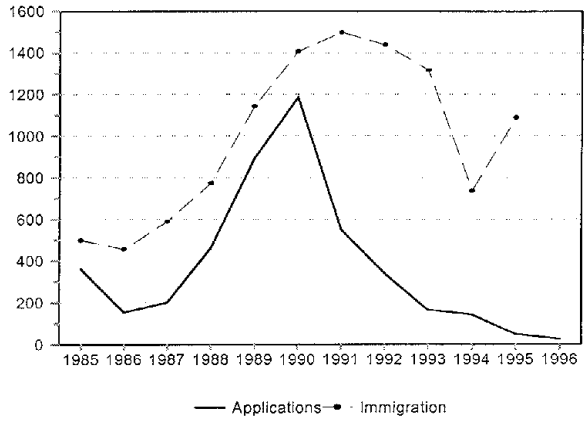

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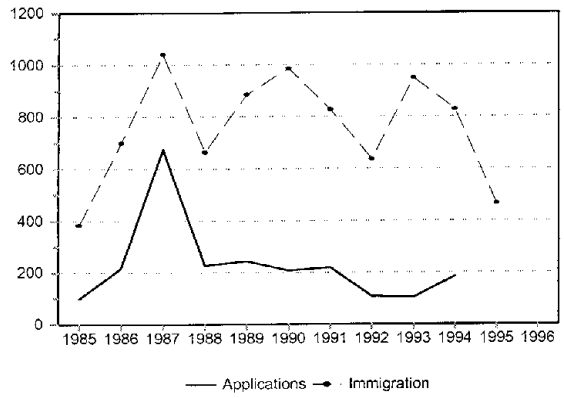

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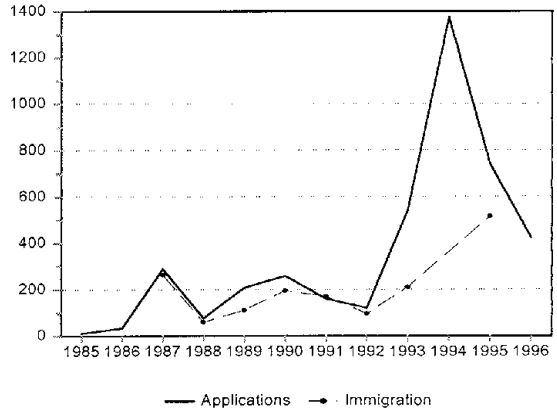

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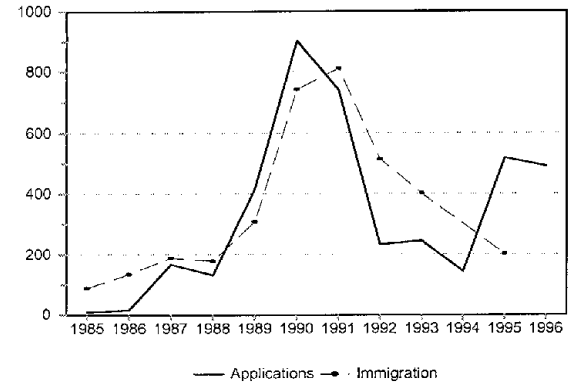
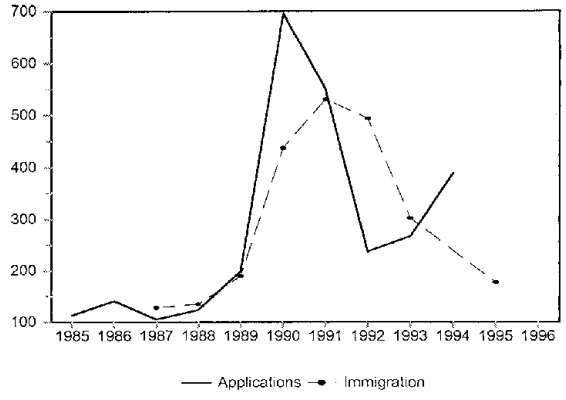
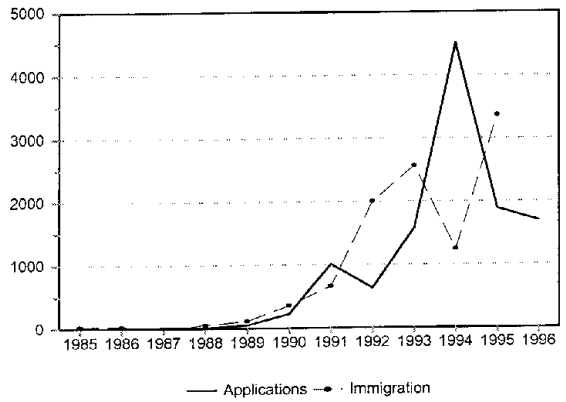
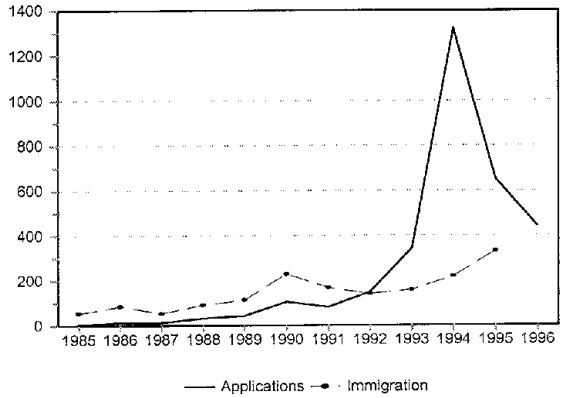




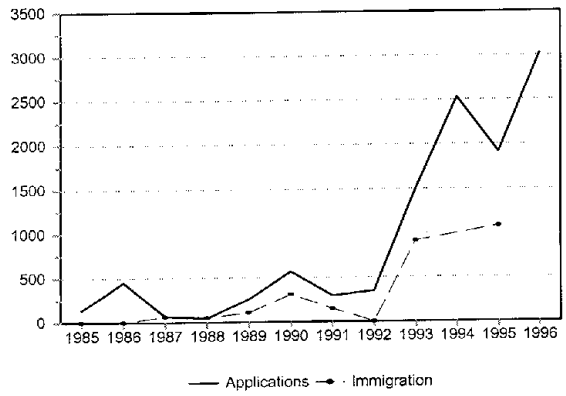
(Former) SU to the Netherlands



Algeria to the Netherlands



Afghanistan to the Netherlands



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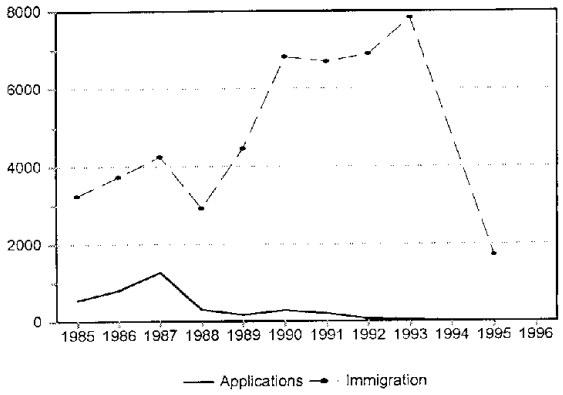
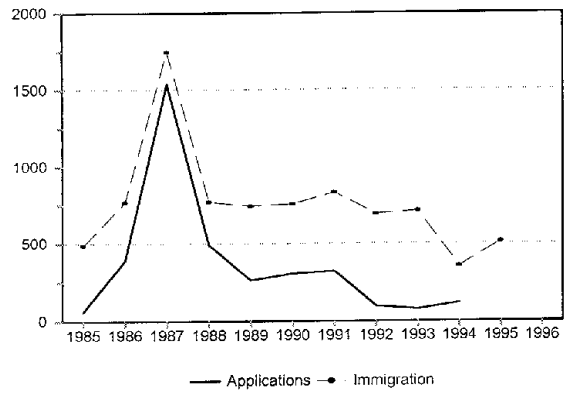


India to the Netherlands



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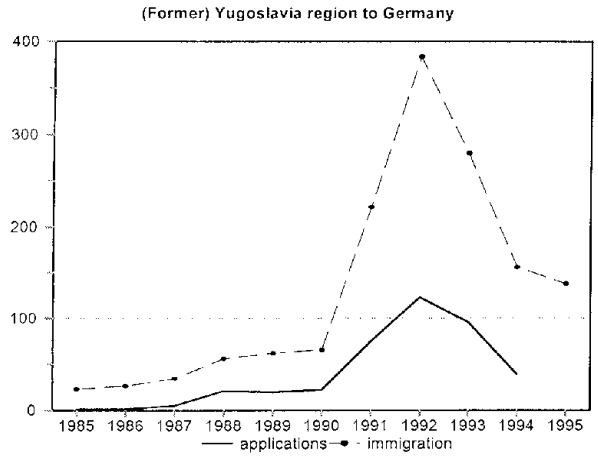
Germany

Asylum requests and immigration by nationality 1985-1995


(Former) Yugoslavia region to Germany
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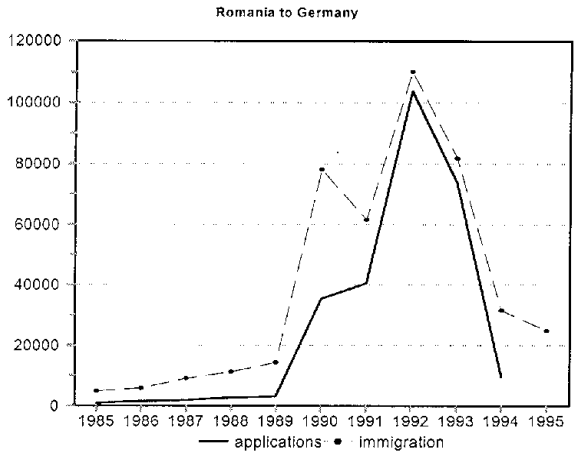
300
200
100
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration


Romania to Germany
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80000
60000
40000
20000
0
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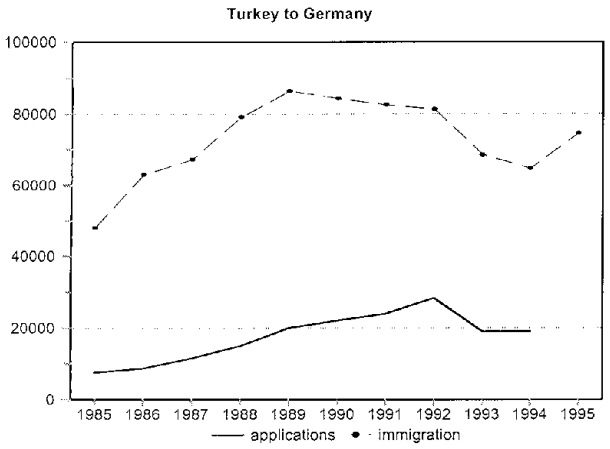
applications
immigration


Turkey to Germany
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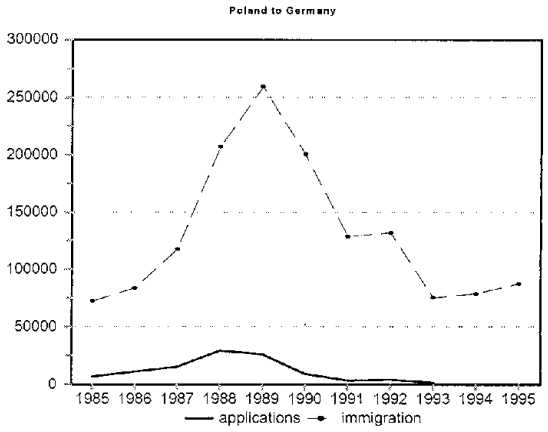
60000
40000
20000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration


Poland to Germany
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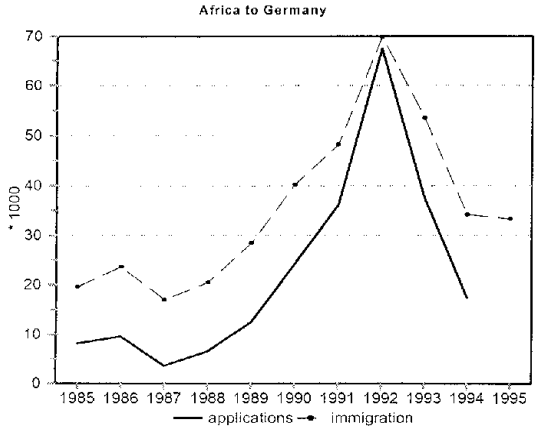
200000
150000
100000
50000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration


Africa to Germany
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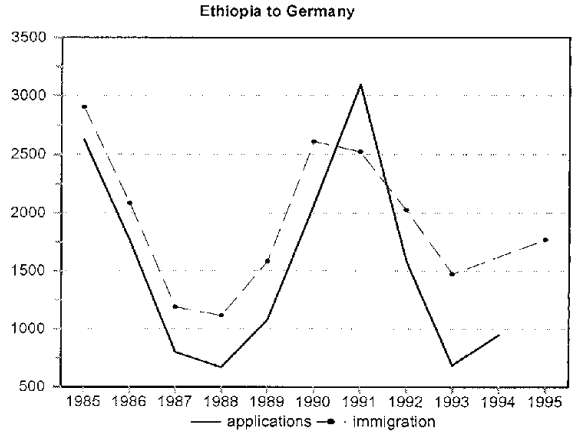
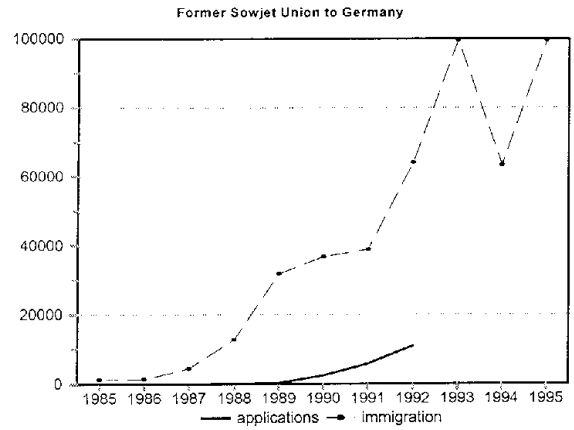
50
40
30
20
10
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration


Ethiopia to Germany
3500
3000
2500
2000
1500
1000
500
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration

Appendix 2


Former Sowjet Union to Germany
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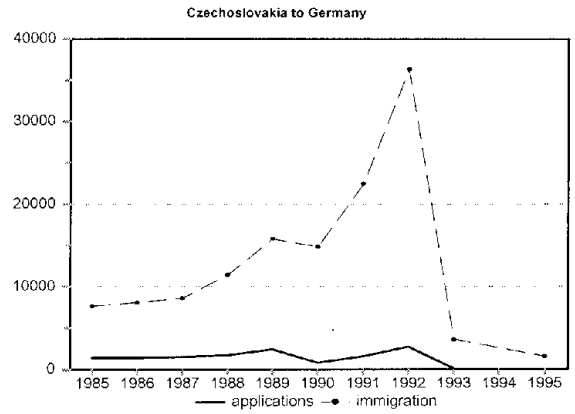
60000
40000
20000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration


Czechoslovakia to Germany
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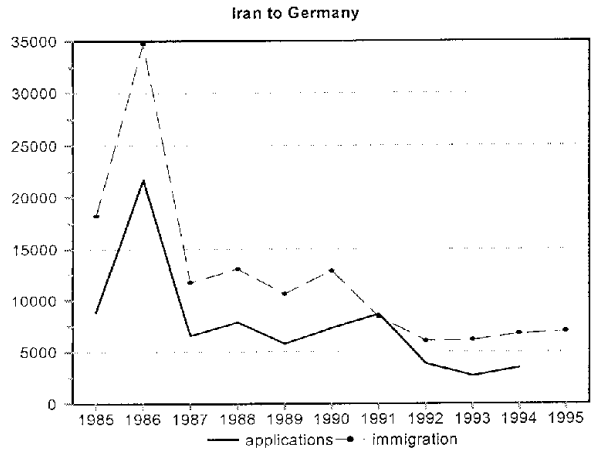
30000
20000
10000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration


Iran to Germany
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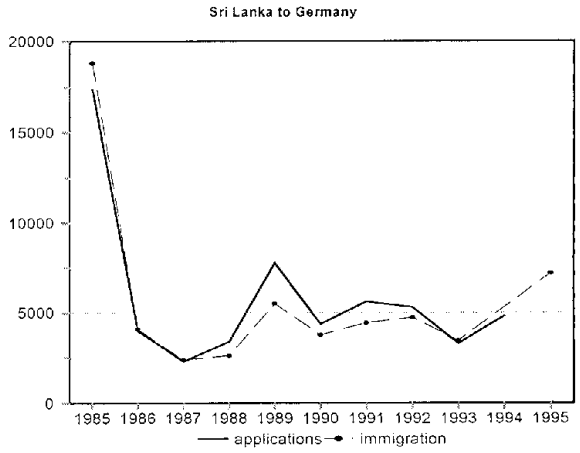
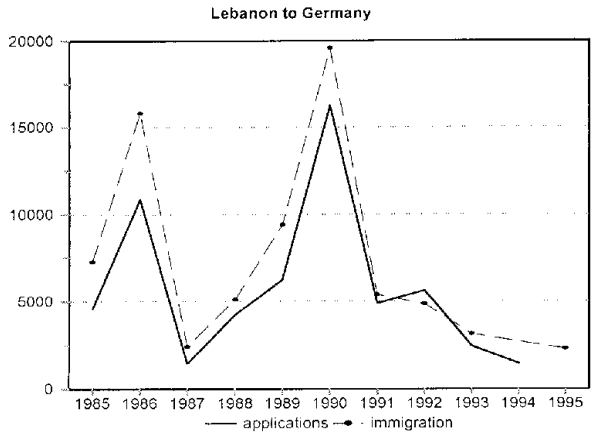
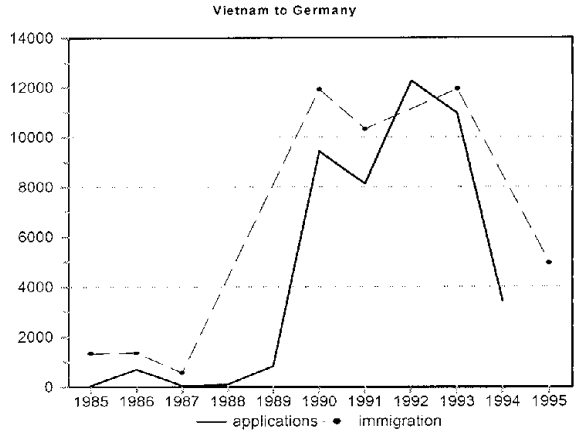
30000
25000
20000
15000
10000
5000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration


Sri Lanka to Germany
20000
15000
10000
5000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration


Lebanon to Germany
20000
15000
10000
5000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration


Vietnam to Germany
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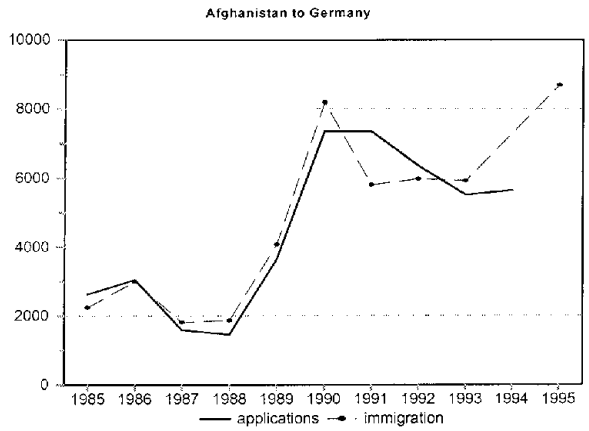
8000
6000
4000
2000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration


Afghanistan to Germany
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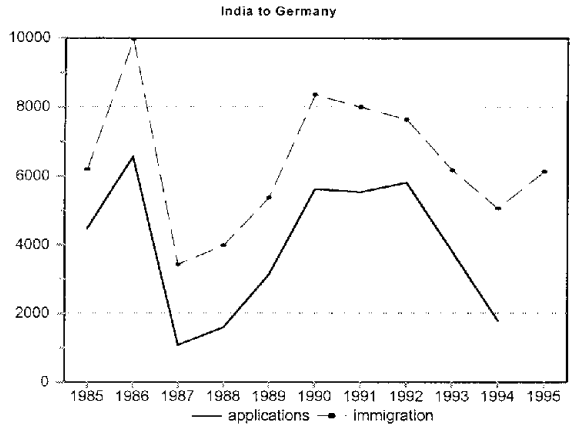
8000
6000
4000
2000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration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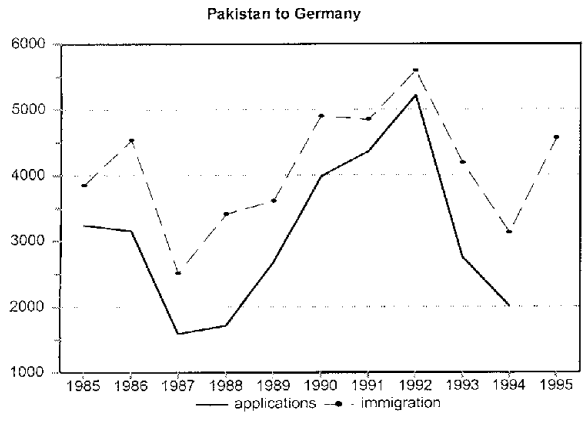
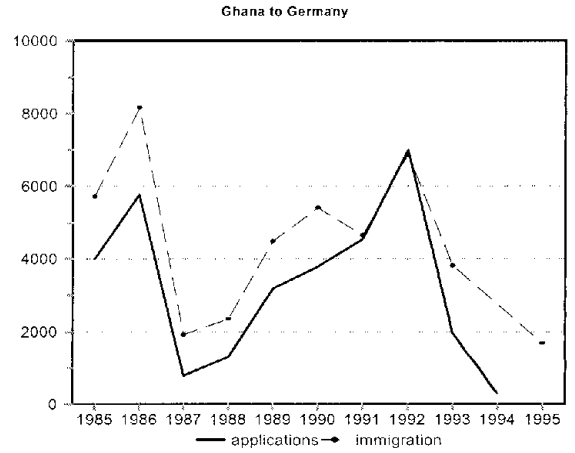
4000
2000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration


Pakistan to Germany
6000
5000
4000
3000
2000
1000
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration


Ghana to Germany
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6000
4000
2000
0
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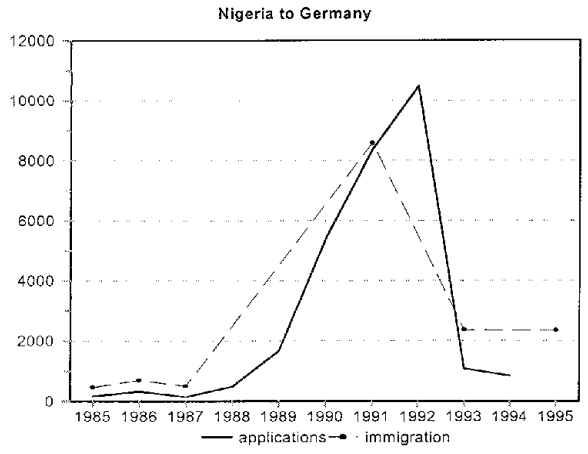
applications
immigration


Nigeria to Germany
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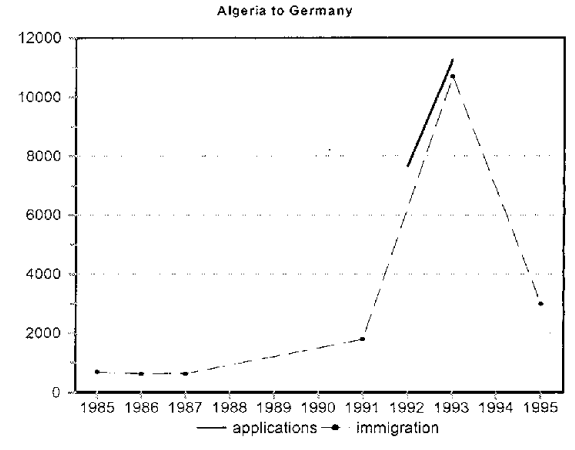
10000
8000
6000
4000
2000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration


Algeria to Germany
12000
10000
8000
6000
4000
2000
0
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995
applications
immigration

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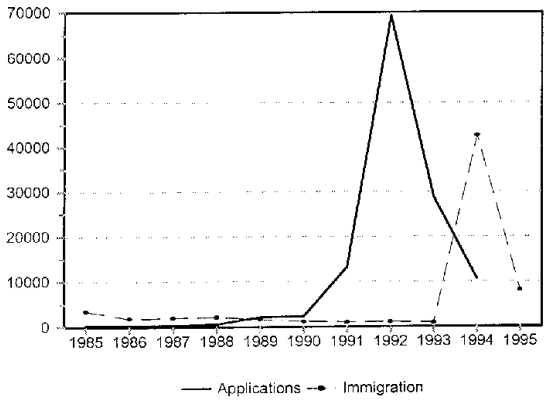
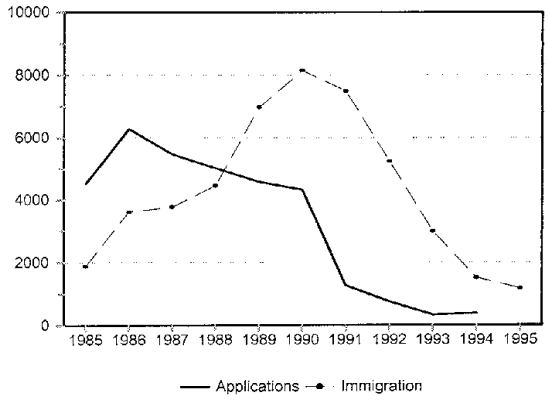
Appendix 3
Sweden

Asylum requests and immigration by nationality 1985-1995

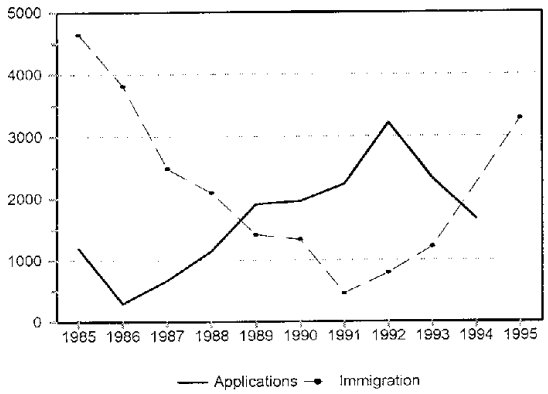
(former) Yugoslavia to Sweden



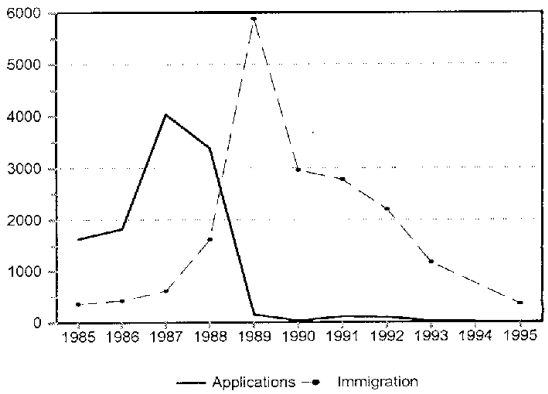
Iran to Sweden



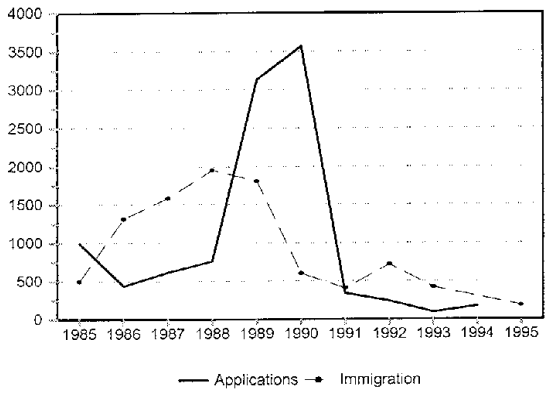
Iraq to Sweden



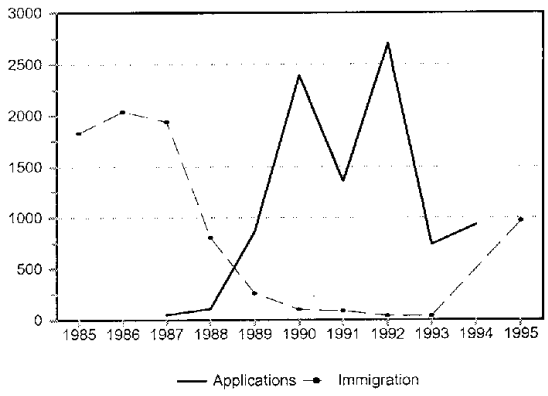
Chile to Sweden



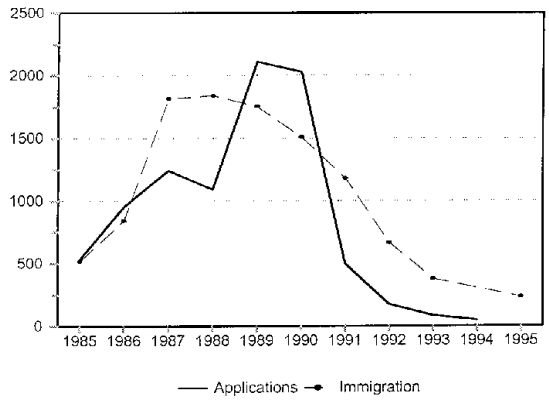
Lebanon to Sweden



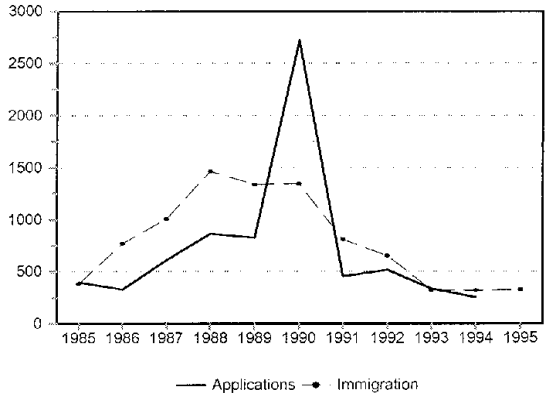
Somalia to Sweden



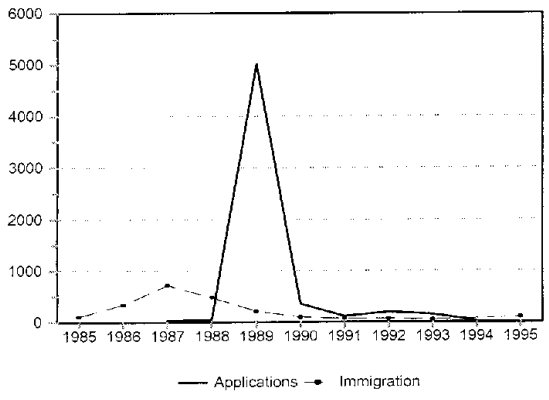
Ethiopia to Sweden



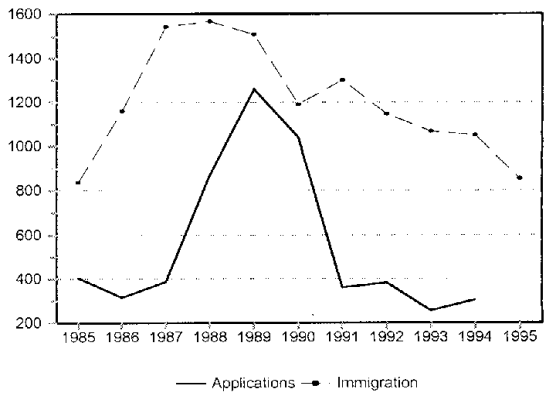
Romania to Sweden



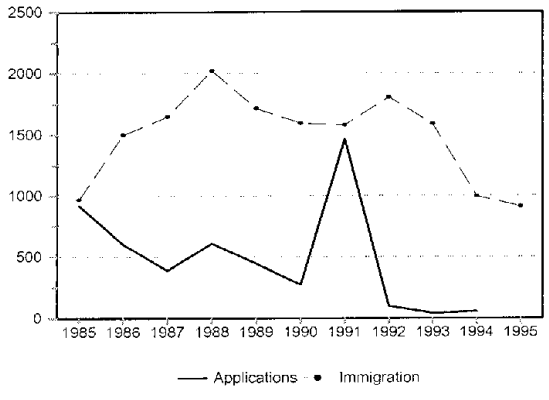
Bulgaria to Sweden



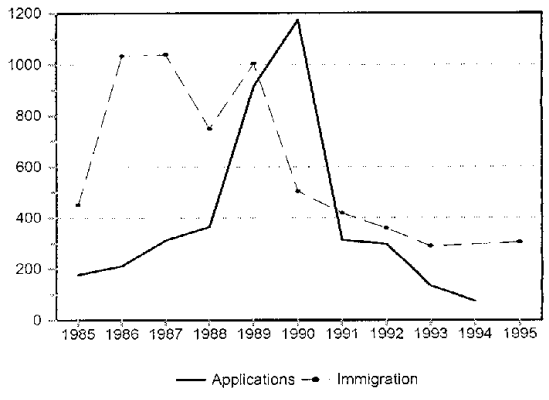
Turkey to Sweden



Poland to Sweden



Syria to Sweden



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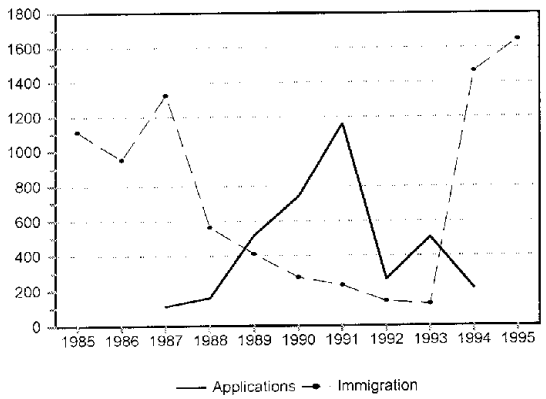
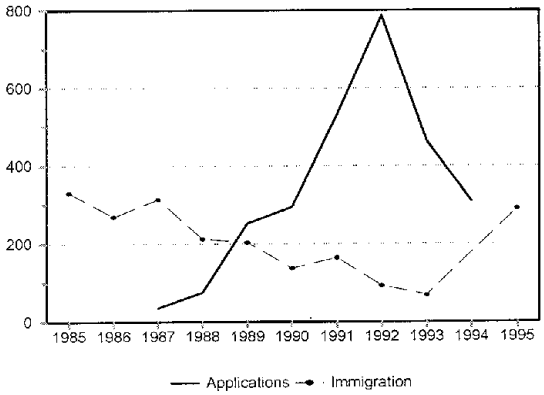
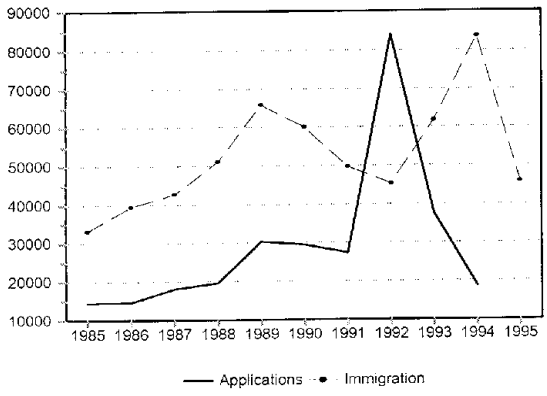


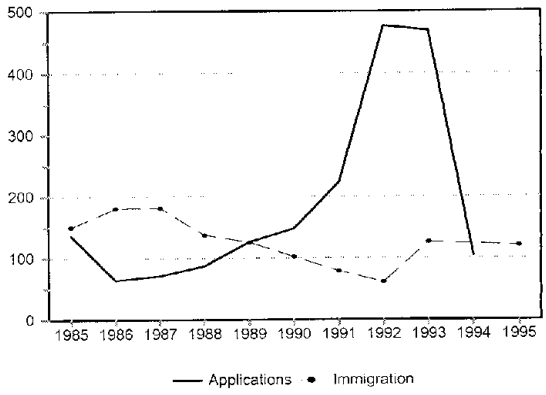
Peru to Sweden



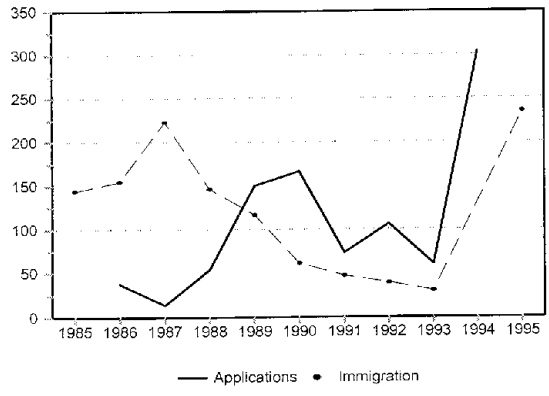
Sweden totals



Uganda to Sweden



Afghanistan to Sweden



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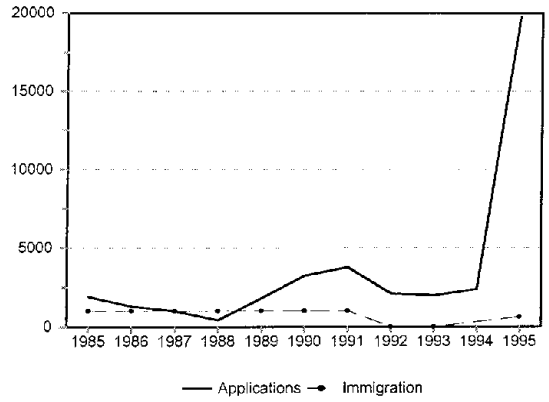
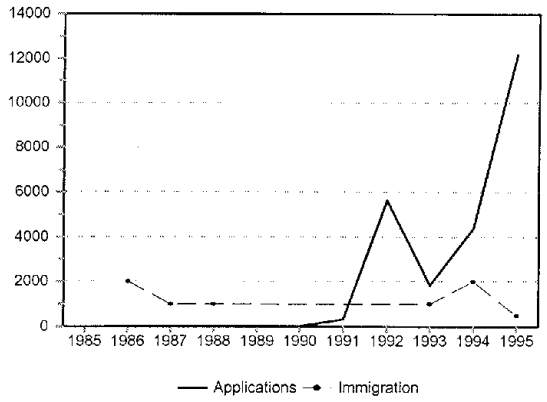
Appendix 4
United Kingdom

Asylum requests and non-native immigration 1985-1995

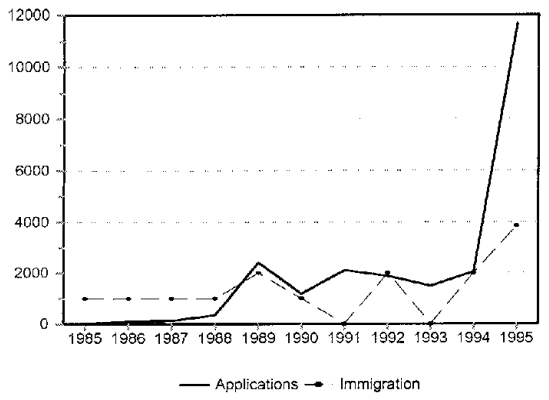
Sri Lanka to UK



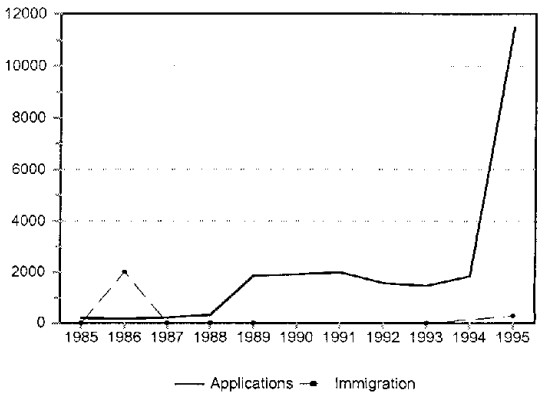
Yugoslavia to UK



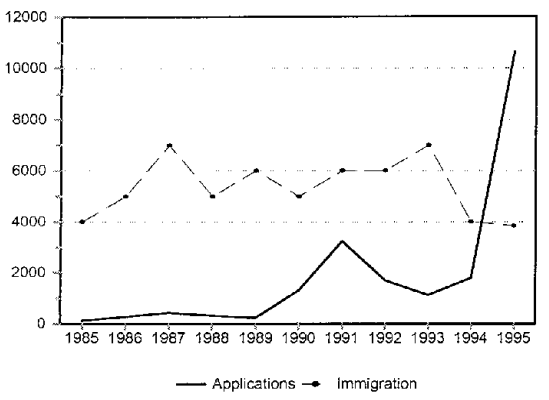
Turkey to UK



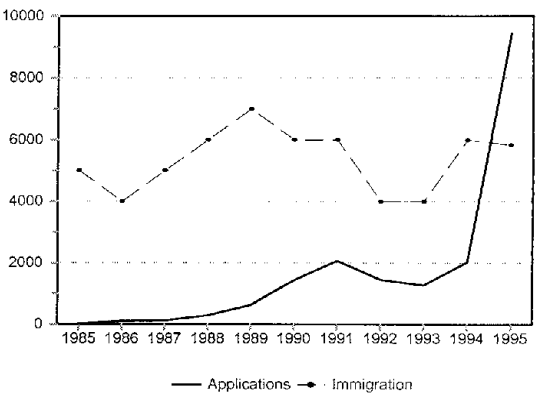
Somalia to UK



Pakistan to UK

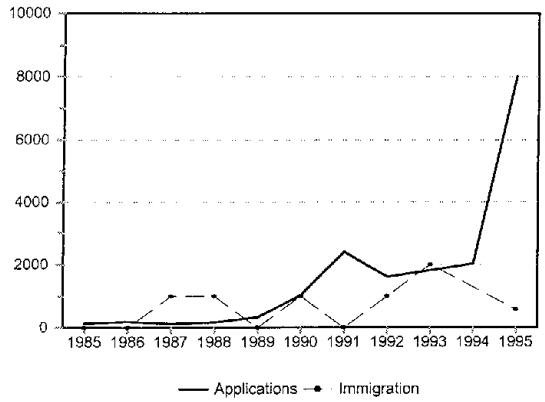


India to UK

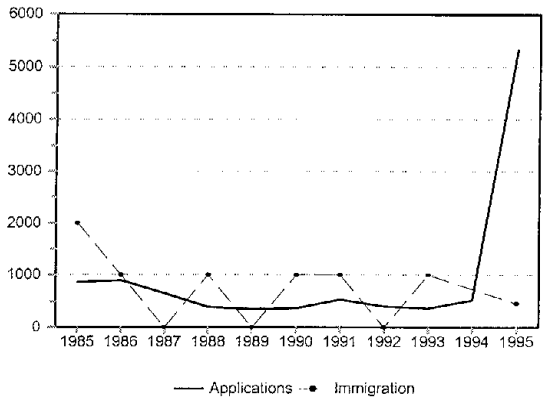


Appendix 4

Ghana to UK



Iran to UK



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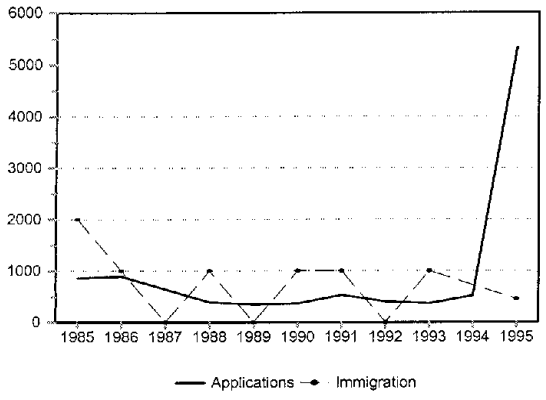
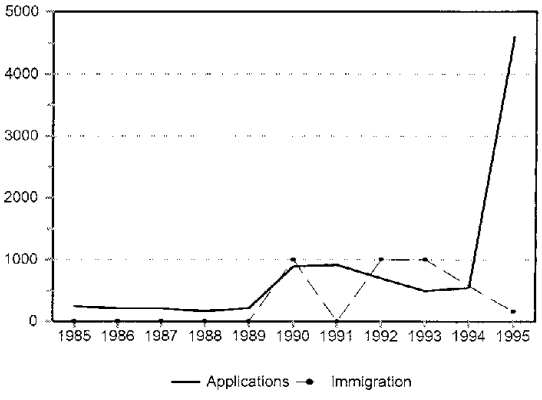


Iraq to UK



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E4/1997-1	Comparing data sources for measuring international migration in Central and Eastern Europe Michel Poulain - Université Catholique de Louvain
E4/1997-2	La mesure des courants de migration internationale entre la Belgique, d'une part, le Danemark et la Suède, d'autre part Ingvar Johannesson, Statistics Sweden, Örebro Anita Lange, Danmarks Statistics, Copenhagen Michel Poulain, Institut National de Statistique, Bruxelles
E0/1997-3	Living conditions and inequality in the European Union, 1994 Joachim Vogel, Statistics Sweden
E4/1997-4	Birth expectations and their use in fertility forecasting W. Van Hoorn, Statistics Netherlands N. Keilman, Statistics Norway
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