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Economic Determinants of Net International Migration in Western Europe

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Abstract. This paper aims to estimate the influence of economic determinants on net international migration in Western Europe in the period 1960–1998. Net migration rates (i.e., population growth minus natural increase, divided by the midyear population) constitute the dependent variable. The economic determinants used in this study are GDP per capita, unemployment, and average educational level (amount of human capital) of the population. Time series regression models have been used in country-specific analyses. In addition, a pooled cross-sectional time series analysis has been made. The analyses suggest that GDP per capita has a positive effect and unemployment a negative effect on a country's net international migration.

Key words: economic theory, international migration, time series analysis, Western Europe

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Résumé. Dans cet article, nous cherchons à estimer l'influence des facteurs économiques sur les migrations internationales en Europe de l'ouest dans la période 1960–1998. Les taux nets de migration (accroissement annuel de la population diminué de l'accroissement naturel et rapporté à la population moyenne) représentent la variable dépendante. Les variables économiques prises en compte ici sont le PNB par habitant, le chômage, le niveau moyen d'instruction (capital humain). Les analyses particulières à chaque pays ont été effectuées sur des séries temporelles grâce à des modèles de régression. Par ailleurs, une analyse a été conduite transversalement sur l'ensemble des séries temporelles. Les résultats montrent un effet positif du PNB par habitant et un effet négatif du chômage sur la migration internationale nette d'un pays.

Mots clés: analyse de séries temporelles, Europe de l'ouest, migration internationale, théorie économique

1. Aim and background

The number of empirical studies on international migration in Europe is quite large. However, attempts to measure the influence of several indicators proceeding from competing or coexisting theories, on international migration are rare (Massey et al., 1998). This paper aims to fill part of this gap by estimating the influence of economic determinants on net international migration in European countries without a communist past in the period 1960–1998. An economic point of view covers a considerable part of the theoretical background (Jennissen, 2000).

International migration in Europe in the 1960s and the early 1970s (until the economic recession of 1973/1974) consisted for a considerable part of labour migration. The domestic labour force in many Western and Northern European countries could not comply with the very high demand for manual labour. Many labour migrants went from Southern European countries to Western Europe (King, 1993; King and Rybaczuk, 1993). The labour exporting countries in Southern Europe (Greece, Italy, Portugal, Spain and Yugoslavia)[1] experienced considerable net emigration in this period. This also happened with the Irish Republic and Finland, as a result of large labour flows to the UK and Sweden, respectively (Mac Laughlin, 1993; Hammar, 1995). Since the 1980s, economic factors play a less important part in explaining migration flows *within* Europe. The limited consequences of opening the international borders within the European Union for intra-European labour migration, for instance, have shown that the international mobility of labour within Europe is small (King, 1993). At the same time, economic indicators remain important factors behind *intercontinental* migration flows to Europe and behind migration *from the former communist countries* in Eastern Europe to EU and EFTA countries. So, although the geographical pattern of migration in Europe has changed, much of the theoretical rationale for migration remains nevertheless unchanged.

The empirical application of economic theories of international migration in the present study is complicated by two factors. First, *net* migration data are used, while the theoretical considerations typically apply to immigration and emigration separately. Second, although economic conditions affect migration flows, migration flows also have an impact on the economy. Both factors could not be avoided in this study. They do, however, imply that the models to be estimated are more of a descriptive than of a truly explanatory nature.

The outline of the paper is as follows. We start with the theoretical background (section 2). The data are described in section 3, and the methodology in section 4. For the empirical application, the countries in Western Europe are split up into two groups: the former labour importing countries and the former labour exporting countries. The results of country-specific time series analyses are presented in section 5 for the former *labour importing* countries and in section 6 for the former *labour exporting* countries. In each section, we will present the results for one country in more detail, to provide a better understanding of the relevant

mechanisms (economic, political, colonial and social) in the analyses. Finally, in section 7 we present the results of a pooled cross-sectional time series analysis for all countries simultaneously. The paper ends with some concluding remarks.

2. Theoretical background

2.1. DETERMINANTS OF NET MIGRATION

Formulating net migration hypotheses is quite complex. We have to keep in mind that an increase in net migration (which can be either positive or negative) can be an increase in net immigration in a receiving country, but also a decrease in net emigration in a sending country.

According to *neo-classical economic theory*, international labour flows exist as a consequence of wage differences between countries. These international labour flows create a new international equilibrium in which real wages have the same level in all countries (Borjas, 1989; Massey et al., 1993, 1998; Bauer and Zimmermann, 1995; Öberg, 1997). In the case of two countries only, the wage difference between the labour importing and the labour exporting country has a *negative* effect on net international (labour) migration in the labour *exporting* country and a *positive* effect on net international migration in the labour *importing* country. However, with multiple countries, a country's net migration figure is the net result of the aggregated migration flows between this particular country and all other countries. Therefore, these aggregated data do not allow a proper testing of neo-classical theory. However, two former labour exporting countries in our analysis (Finland and the Irish Republic) have a net migration pattern which is dominated by (labour, family and return) migration flows to and from one country (Sweden and the UK, respectively). For these two countries, the difference in GDP per capita between the dominant receiving and the sending country has been used in the analyses for these two countries. For the other countries, we have used just the country's own GDP per capita. We may now formulate hypothesis 1: GDP per capita has a positive effect on net international migration (an increase in GDP per capita will decrease net emigration from labour exporting countries and increase net immigration into labour importing countries). This hypothesis is based on the assumption that GDP per capita is directly correlated with international wage differentials.

Keynesian economic theory is critical of the neo-classical view on (international) migration. In Keynesian theory, labour supply depends on the nominal wage, not on the real wage. This distinction originates in the different views on the role of money in the economy. In the neo-classical point of view money is solely a medium of exchange. The Keynesian point of view is different, because here money is not only a medium of exchange but also a medium of saving. Because of this latter function of money, potential migrants are also attracted to high *nominal* wage regions. In addition, intentions to re-migrate or to send remittances further increase the importance of the *nominal* wage level compared to the *real* wage level.

As a result, a new international equilibrium, as neo-classical theory foresees, may not exist. Nevertheless, in Keynesian theory migration is an equilibrium recovering mechanism, too: international migration removes *unemployment* differences rather than real wage differences (Hart, 1975; Van Dijk, 1986). A different theory, the *dual labour market theory*, argues that international migration is mainly driven by pull factors in the developed (i.e., migrants receiving) countries. Piore (1979) gives three possible explanations for the demand for foreign workers in modern industrial societies: general labour shortages; the need to fill the bottom positions in the job hierarchy; and labour shortages in the secondary segment (which is characterized by a labour-intensive method of production and predominantly low-skilled employment) of a dual labour market. On the basis of Keynesian theory and the dual labour market theory we may formulate hypothesis 2: unemployment has a negative effect on net international migration (unemployment has a negative effect on net immigration into labour importing countries and a positive effect on net emigration from labour exporting countries). In Keynesian theory this hypothesis applies to both labour exporting and labour importing countries, whereas in the dual labour market it applies to labour importing countries only.

Our third hypothesis is related to education. The *dual labour market theory* argues that shortages at the bottom of the job hierarchy in labour *importing* countries may exist because of motivational problems. Jobs at the bottom of the hierarchy are not associated with social status, and opportunities for upward mobility are generally low (Massey et al., 1993). These motivational problems and therefore labour shortages at the bottom of the job hierarchy will be larger, the higher the average level of education of the country's population. The educational level may also influence net migration in labour *exporting* countries. According to *the relative deprivation approach*, the amount of inequality in a society will have a positive effect on emigration (Stark and Taylor, 1989). Educational expansion may result in more equal educational opportunities, as school choices and performances at older ages are less determined by (the socio-economic status of) parents than at younger ages (Mare, 1981). More educational equality leads to more income and status equality as educational attainment has a positive impact on occupational status and income (Blau and Duncan, 1967; Hauser and Sewell, 1986; Van Eijck, 1996). These aspects of the dual labour market theory and the relative deprivation approach form the basis of hypothesis 3: the educational level in a country has a positive effect on net international migration (a higher educational level in a labour exporting country will decrease emigration, a higher educational level in labour importing countries will lead to an increase in immigration).

So far the hypotheses have been based on theoretical aspects of labour migration. However, also migration for other motives, such as family reunification and formation, return migration and asylum migration, are partly determined by economic factors. Family migration is most likely relatively larger when the differences in economic conditions between the country of destination and the country of origin are larger. The higher the income in a receiving country, the more depend-

ants may come over to live on one salary. Shrinking differences in wages or unemployment rates between destination and origin countries may be an incentive for return migration. Asylum migration, finally, seems to be less determined by economic factors – a sincere asylum migrant has no economic motives underlying his decision to migrate. Nevertheless, the choice for a certain country of destination can undoubtedly partly be determined by economic factors. Therefore, also in periods of relatively low labour migration, economic prosperity will still positively affect net international migration.

Economic determinants, however, are not the only factors that play a role in international migration. Social, cultural and political factors are also important. Of special importance is the effect of *migrant networks*. Within a large migrant population, migrant networks may be formed, involving interpersonal linkages between (migrant) populations in origin and destination areas. The emergence of migrant networks may help potential migrants of the same ethnic origin, for instance, by contributing to financing the journey, helping to find a job or appropriate accommodation, or by giving information about education possibilities or access to social security (Esveldt et al., 1995). When international migration occurs on a large scale it can become institutionalized. According to *institutional theory*, a large inflow of international migrants induces profit and non-profit organizations, which can be legal as well as illegal, to provide items such as (clandestine) transport, labour contracts, (counterfeit) documents, dwellings or legal advice (Massey et al., 1993). These organizations are often embedded in migrant networks. Considering network and institutional theory we may formulate hypothesis 4: migrant stocks that are the result of recent (labour) migration have a positive effect on net international migration. According to this hypothesis an increase in the migrant stock will lead to additional immigration into both labour importing and labour exporting countries.

The hypotheses are summarized in Table I. Other social, cultural and political factors are important as well. These factors often refer to specific circumstances and events in individual countries, and they have to be taken into account when explaining international migration trends and differences.

Within the extensive international migration literature, empirical research which attempts to test migration theories is rather scarce. However, two recent studies on international migration in Europe support the hypotheses 1, 2 and 4. Vogler and Rotte (2000) found significant positive effects of GNP per capita (receiving country/sending country) and the stock of nationals of the sending country on total immigration and asylum migration from African and Asian countries to Germany. According to analyses by Van der Gaag and Van Wissen (1999), unemployment turned out to be the most important economic indicator of international migration in Germany, the Netherlands and the UK. In the empirical analyses that follow, we will test all four hypotheses jointly and for a large number of European countries simultaneously.

Table I. Hypotheses

1	GDP per capita has a positive effect on net international migration.
2	Unemployment has a negative effect on net international migration.
3	Educational level has a positive effect on net international migration.
4	Migrant stocks which are the result of recent (labour) migration have a positive effect on net international migration.

2.2. REVERSE EFFECTS

Although this paper focuses on the effects of economic factors on international migration, international migration in turn may also have an impact upon economic developments. Some of these will be discussed below. They will be ignored in the empirical analysis to follow, but the fact that they exist implies that our models are not truly explanatory.

International migration may have an impact upon the economic development of *sending* countries if migrant workers remit part of their earnings home to support their family. If labour outflow and consequently *remittances* experience great ups and downs, the economy of sending countries faces considerable adaptation difficulties like inflation or "Dutch disease" (Knerr, 1993). The term "Dutch disease" is used when a country's apparent good economic fortune ultimately proves to have a net detrimental effect (O'Toole, 1998). On the other hand, apart from the "Dutch disease" or "migrant syndrome" perspective, Taylor (1999) also distinguishes the "developmentalist" perspective, according to which remittances have a *positive* effect on economic development in sending countries.

International migration may also act upon the economy in sending countries via changes in the *demographic composition*, affecting the quality and quantity of the labour force. An outflow of relatively high skilled workers is called a "brain drain". Miyagiwa (1991) shows that a brain drain reduces the production in a sending area.

International migration also has an impact on the economy of *receiving* countries. International migrants eliminating *labour shortages* in certain branches of industry contribute to economic growth (Gieseck et al., 1995). With regard to human capital, Van Dalen (1993) argues that migration can only be favourable for receiving countries if the saving in costs on the education of immigrants outweighs the so-called capital dilution effect.[2]

International migration can also change *lifestyles* of populations in receiving countries. To the extent that changing lifestyles involve changing saving and consumer habits or changing forms of investment, this can have an impact on economic developments in receiving countries (Frey and Mammey, 1996; MaCurdy et al., 1998). Saving and consumer habits in countries of *origin* may be influenced by international migration as well. In this respect remittances, return

migration, and the network of emigrants in the country of origin may be of importance (Day and Içduygu, 1999).

3. Data

Absolute net migration has been computed as population growth minus natural increase. Division by the midyear population yields net migration rates, which constitute the dependent variable (source: Council of Europe, 1999; Eurostat, 2000).[3]

A major advantage of using *net* migration is that long time series are available for almost all countries. Therefore, net migration patterns can be used as basic indicator to describe migration developments over time and across countries. However, using (computed) net migration data has also disadvantages. A first disadvantage is that we do not know anything about the size of the actual (gross) immigration and emigration flows. Low net migration figures may be the result of a small inflow and outflow as well as the result of a large inflow and outflow. The decision to migrate takes place at the individual level. In contrast, "net migration" describes a non-existing group of people: the difference between a group of immigrants and a group of emigrants; the motives to migrate might be quite different between the two groups. A second disadvantage is that peaks and falls in net migration patterns may be the result of other factors than of real migration movements, for instance legalization of clandestines or administrative corrections. If observed net migration (immigration minus emigration) was available, it was compared with computed net migration. If the differences between the two were too large, the data for a particular country were left out of the analysis.[4]

The year 1990 was a very turbulent year in European (migration) history. Net migration from the GDR to the FRG could be international as well as internal migration in this year. Moreover, many people from former communist Europe used their regained freedom to try to emigrate to the West. For consistency and comparability reasons, the year 1990 was not taken into account in the analyses.

The independent variables that have been used in the analyses are: GDP per capita, unemployment, educational level, and migrant stock per capita. Table II gives details on data sources and operationalization.

For population, GDP, and unemployment, almost complete data series are available. For educational level and the migrant stock, on the other hand, comparable data exist for a limited number of years only. Therefore, estimates had to be made to complete these series. Barro and Lee (2000) estimated the average years of schooling of the total population aged 25 and over with a 5-year bridge (1960, 1965, ..., 2000). A second order function was fitted to these data to obtain complete time series from 1960 until 1998. The Trends in Total Migrant Stock by Sex database of the United Nations (1998a) also has no complete time series from 1960 until 1998. This database contains data for 1965, 1975, 1985 and 1990. For the remaining years data have been interpolated.[5]

Table II. Independent variables[i]

Variable	Operationalization	Source
Population	Population at the beginning of the year and midyear population	Council of Europe (1999)[ii]
GDP per capita	1990 US$ converted at Geary Khamis PPPs	Groningen Growth and Development Centre (GGDC) (2001)
Unemployment	Total unemployment as percentage of the total labour force[iii]	Gärtner (2000)[iv]
Educational level	Average years of schooling of the total population aged 25 and over	Barro and Lee (2000)
Migrant stock per capita	Foreign-born population per 1000 at the beginning of the year[v]	United Nations (1998a)

[i] Years of observation: 1960–1998; FRG: 1960–1989; Germany: 1991–1998; Yugoslavia: 1960–1988; unemployment Norway: 1963–1998; unemployment Switzerland: 1962–1998.
[ii] The data source for midyear population of Greece, the Irish Republic and Spain is Groningen Growth and Development Centre (GGDC) (2001). Eurostat (2000) data have been used for the population of Spain at the beginning of the year. The data for former Yugoslavia are the sum of Slovenia, Croatia, Bosnia Herzegovina, Yugoslavia (Serbia and Montenegro) and the Former Yugoslavian Republic of Macedonia.
[iii] For Yugoslavia registered unemployment as percentage of the total labour force has been used.
[iv] The data source for Yugoslavia is Mencinger (1989 in Woodward, 1995).
[v] This operationalization of the migrant stock does not take into account the native born ethnic population, although migrant networks may be formed within this part of the population as well. The data for Austria, Belgium, the FRG, Germany, Greece and Switzerland refer to Nationality (Citizenship). FRG 1990 = Germany 1990 – GDR 1985.

4. Methodology

Time series regression analysis has been used for the country-specific analyses. In these analyses, only GDP per capita, unemployment, and a vector of country-specific dummy variables (in order to capture political and decolonization effects) have been taken into account. In addition, unemployment in the most important receiving country has been included for (former) labour exporting countries. The average years of education and migrant stock variables were left out to avoid multicollinearity problems: both variables are highly correlated (> 0.80) with GDP per capita or unemployment in almost every country.

The dummy variables have been constructed as follows. First, for labour importing countries, regression analysis was conducted with only GDP per capita and unemployment. Whenever a residual turned out to be larger than two standard errors *and* an indication that a major political event occurred in that year was found in the existing literature, a dummy variable was included in the model. Dummy

variables can be one-year only (e.g., when a former colony became independent) but can also refer to a structural shift (e.g., policies to stop the import of labour).

In the case of collinearity between GDP per capita and unemployment in former labour importing countries, the variable with the largest absolute t-value was retained; if both variables were not significant ($p > 0.05$, one-sided test), the variable yielding the highest adjusted R^2 was selected. For former labour exporting countries, collinearity between the economic variables was a problem in all cases, since unemployment in the dominant receiving country correlated strongly (> 0.80 in absolute terms) with unemployment or GDP per capita. If the model of a former labour exporting country could comprise two economic variables, the model with the most (one or two) significant economic variables was selected. If the models had an equal number of significant economic variables, we selected the model with the highest average absolute t-value for the economic variables. If the model could comprise only one variable, the same method as for former labour importing countries was used to choose the best model.

If autocorrelation was found in a model, an autoregression term (AR) of the first or second order was estimated. However, another (combination of) variable(s) was used if this could avoid the use of an autoregression term of the first or second order.

In addition to the country-specific analyses, we also conducted a pooled cross-sectional time series analysis for all Western European countries simultaneously. The aim of this analysis was to find a single effect per variable for all countries. Compared to single time series regression analyses, pooled cross-sectional time series analyses have the advantage of more observations. Moreover, pooled cross-sectional time series analyses have the advantage of possible additional information from differences between countries. In the pooled cross-sectional time series no multicollinearity was found between the independent variables, so that *all* hypotheses (see section 2) could be tested. The dummy variables used in the country-specific analyses were also included in the pooled cross-sectional time series analysis. Similar to the country-specific models, the pooled model was also tested for autocorrelation.

5. Country-specific analyses for former labour importing countries

The former labour importing countries with a population of more than one million are: Austria, Belgium, Denmark, France, the FRG, the Netherlands, Norway, Sweden, Switzerland and the UK. These countries imported labour until the recession of 1973/1974. Within this group of countries, we will discuss the Dutch case study in some detail.

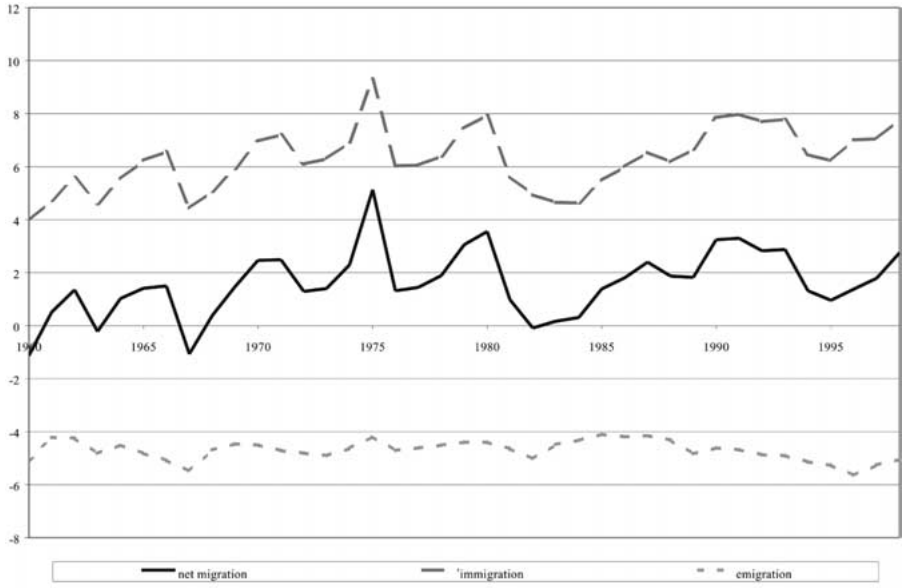

Figure 1. Migration pattern of the Netherlands (rates × 1000). Source: Statistics Netherlands (2001).

5.1. THE DUTCH CASE STUDY

Net migration in the Netherlands had been positive for almost the entire period 1960–1998 (see Figure 1). The net migration of nationals was predominantly negative during this period, with the exception of the years preceding the decolonization of New Guinea (1962) and Surinam (1970–1975) and the years 1985–1987 (Penninx et al., 1994; Statistics Netherlands, 2001). The net migration of foreigners had been positive during the entire period 1960–1998. The pattern of total net migration corresponds to the pattern of total immigration and even (except for the years preceding the independence of Surinam) to the pattern of the immigration of foreigners.

Over the period 1960–1998 immigration into the Netherlands gradually increased from about 60 thousand to about 110 thousand a year in the 1990s. This increase was mainly caused by increasing immigration of foreigners, which more than tripled (from 23 thousand to about 75 thousand) (Eurostat, 1997). The economic situation in the Netherlands improved significantly in the 1960s. Labour shortages caused an inflow from Southern European countries (especially Italy and Spain) to the Netherlands. In the second half of the 1960s, when immigration from these countries faded, Turks and Moroccans followed. Return migration among Italians and Spaniards was significant, stimulated by the favourable economic development of their native countries. In contrast, return migration among Turks and Moroccans hardly occurred. Instead, they preferred family reunion in the Netherlands. After family reunification in the 1970s, the character of immigration

of Turks and Moroccans changed again in the 1980s to family formation (marriage migration). A special year was 1975: there was a large inflow of Surinamese triggered by the independence of Surinam and also a regularization of clandestines, mainly affecting young Turkish and Moroccan males (De Mas and Hafmans, 1985 in Lakeman, 1999). A treaty between Surinam and the Netherlands, whereby Surinamese could choose between the Dutch and the Surinam nationality until five years after independence, caused a second large inflow of Surinamese in 1979 and 1980 (De Beer, 1997). Since the second half of the 1980s increasing numbers of asylum seekers were the main cause of rising immigration figures.[6] The number of requests for asylum doubled for the years 1990–1992 in comparison with the second half of the 1980s. This increase was mainly caused by the unstable situation in former Yugoslavia. An even stronger increase took place in 1993 and 1994. The number of new requests reached a peak in 1994, probably caused by stricter asylum policies in surrounding countries (especially in Germany), but also related to the increasing inflow of Somali asylum seekers. In 1995 and 1996 the number of new request decreased again to about the level of 1992. This decrease was caused by stricter terms for application for asylum introduced in 1994 and by the Dayton peace-treaty (Nicolaas, 1997). After 1996 the number of new requests increased again as a result of an increase in requests of Iraqi and Afghans (Statistics Netherlands, 1999).

In contrast to immigration, emigration was much more stable in the period 1960–1998 (50–60 thousand per annum). More than half of the emigrants consist of nationals (30–40 thousand per year, versus 20–25 thousand foreigners) with the exception of the year 1967: the recession of 1967, which actually started in the second half of 1966, led already in October 1966 to policy measures of the Cals Administration (Lakeman, 1999). Between the first of October 1966 and the end of 1967 almost half of the guestworkers in the Netherlands returned (Kayser, 1972 in Lakeman, 1999).

In order to take the major political events into account, four dummy variables have been used in the country-specific analysis for the Netherlands: conflict about New Guinea (1962); policy with respect to the recession of 1967 (1967); independence of Surinam (1975); and five years after the independence of Surinam (1979 and 1980). In addition, an autoregressive term of the first order AR(1) was added to correct for autocorrelation.

Table III gives the results of the time series regression analysis for the Netherlands. In model A, GDP per capita (positive) and unemployment (negative) have the expected significant effect on net international migration. Also, all dummy variables have significant coefficients with the expected sign.

To check whether the dummy variables distort the estimated impact of the macroeconomic variables, we have also estimated the model without dummy variables (model B). Without dummy variables, the significance of the unemployment variable disappears, but otherwise the effects of the economic variables hardly

Table III. Results of time series regression analysis to explain net migration (rates × 1000) in the Netherlands 1960–1998 (T = 36)

		Model A		Model B	
		Coefficients (t-values)			
	Constant	–0.57	(–0.65)	–0.43	(–0.36)
Economic variables	GDP per capita (x 10^{-4})	2.22**	(3.16)	2.02*	(1.95)
	Unemployment	–0.20**	(–2.91)	–0.14	(–1.35)
Country-specific dummy variables	Conflict about New Guinea	0.94*	(1.78)	–	
	Recession 1967	–1.99**	(–3.75)	–	
	Independence Surinam	3.70**	(6.96)	–	
	5 years after Independence Surinam	1.74**	(3.66)	–	
	AR(1)	0.46**	(3.05)	0.30*	(1.86)
	Adjusted R^2	0.76		0.20	
	Durbin-Watson statistic	1.72		1.93	

* significant $p < 0.05$ (one-sided test).
** significant $p < 0.01$ (one-sided test).

change. What *does* change is the adjusted R^2, which is much lower in model B, illustrating the considerable effect of political shocks.

Figure 2 plots the observed and two fitted net migration trends in the Netherlands. The figure clearly demonstrates that model A fits the migration trend quite well. However, the model without dummies (B) has large residuals for the years with special events. Both curves show no systematic over- or under-estimation.

5.2. OTHER FORMER LABOUR IMPORTING COUNTRIES

Similar analyses were conducted for the other former labour importing countries. The coefficients of GDP per capita, unemployment and autoregression terms are presented in Table IV, whereas the country-specific dummy variables are given in Table V.

GDP per capita has a positive, significant effect in four out of seven former labour importing countries. The coefficients of GDP per capita in Austria, Sweden and Switzerland are not significant, although the signs are as expected. The coefficients are rather similar. However, the effect of GDP per capita in Switzerland and the UK is quite larger.

Unemployment has a negative effect on net international migration in all former labour importing countries. This effect is significant in Austria, Denmark, France, the Netherlands and Sweden. The impact of unemployment in Belgium, Denmark, France and the Netherlands is rather similar (between –0.10 and –0.25). The coefficient is larger in Austria, the FRG, Sweden and Switzerland. According to Lahav

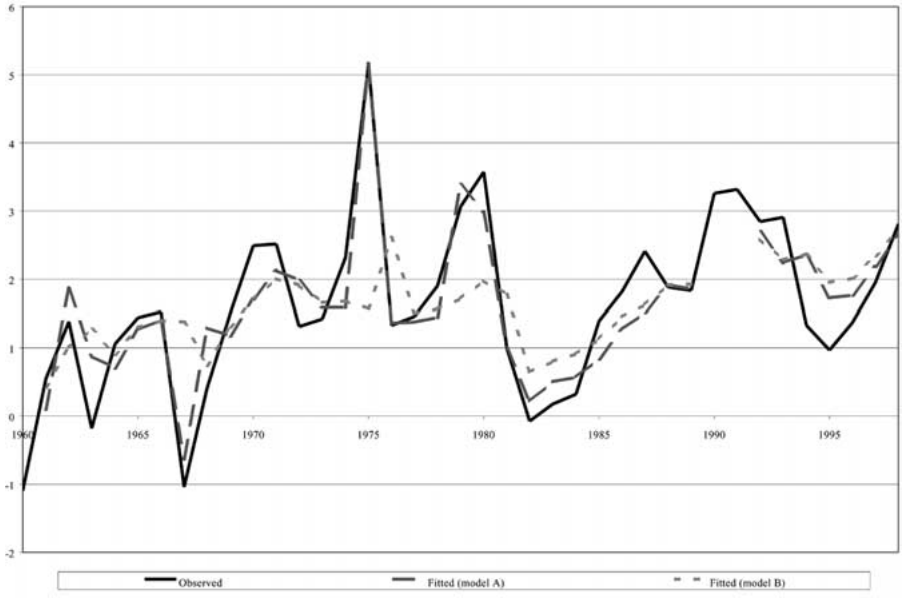

Figure 2. Observed and fitted net migration (rates × 1000) in the Netherlands 1960–1998.

(1995 in United Nations, 1998b), Austria, the FRG and Switzerland developed guest worker models, which attempted to preclude family reunion or long term sojourn. This might be an explanation why net migration in these countries is more responsive to unemployment rates. The absence of a (recent) colonial past is another possible reason for the larger impact of unemployment on international migration in Austria, the FRG, Sweden and Switzerland.

Table V presents the estimation results of the country-specific factors. The recession dummies represent specific policies. The recession itself is represented (at least for a considerable part) by GDP per capita and unemployment. Many (Southern European) labour migrants returned to their countries of origin in the second half of the 1970s. Around 1980, international migration in Europe changed character. In the 1980s the post-industrial movement wave started and continued during the 1990s (White, 1993). This post-industrial movement wave consisted of highly skilled labour, clandestine, and asylum migration. The former labour sending countries in Europe had also become net immigration countries when post-industrial migration started to be the most important migration type in Europe. Therefore, the period in which the recession 1973 and the (textile) production to Finland dummy take effect is limited to the 1970s in spite of quite large residuals for several countries in 1980. All dummy variables, except the *Asyl-* and *Fremdengesetz* in Austria 1993–1998, have the effect (positive or negative) that should be expected. Remarkably, four policy measures (the *Asyl-* and *Fremdengesetz* in Austria 1993–1998; policy with respect to the recession of 1967 in Belgium; the introduction of a quota system in Switzerland 1970–1974; and the introduction of

Table IV. Results of country-specific time series regression analyses to explain net migration (rates × 1000) in former labour importing countries

Country	Coefficients (t-values)				
	Constant	GDPpc (x 10^{-4})	Unemployment	AR(1)	AR(2)
Austria (T = 36)					
Adj. R^2 = 0.73	2.17	2.34	–1.28**	0.65**	–0.32**
DW = 2.26	(1.54)	(1.59)	(–2.63)	(4.12)	(–2.45)
Belgium (T = 26)					
Adj. R^2 = 0.75	2.32*	X	–0.22	0.77**	_
DW = 1.70	(1.87)		(–1.48)	(4.42)	
Denmark[i] (T = 34)					
Adj. R^2 = 0.67	–2.13**	2.70**	–0.16*	0.48**	–0.43*
DW = 2.00	(–2.73)	(4.01)	(–2.12)	(2.66)	(–2.14)
France[ii] (T = 36)					
Adj. R^2 = 0.98	2.30**	X	–0.13**	0.56**	_
DW = 1.74	(6.53)		(–3.15)	(4.17)	
FRG[iii] (T = 26)					
Adj. R^2 = 0.64	5.90**	X	–0.48	0.59*	_
DW = 1.59	(2.75)		(–0.83)	(2.01)	
Netherlands (T = 36)					
Adj. R^2 = 0.76	–0.57	2.22**	–0.20**	0.46**	_
DW = 1.72	(–0.65)	(3.16)	(–2.91)	(3.05)	
Norway (T = 38)					
Adj. R^2 = 0.69	–1.05**	1.54**	X	_	_
DW = 1.54	(–3.63)	(7.26)			
Sweden (T = 35)					
Adj. R^2 = 0.62	–0.03	3.38	–0.67**	0.79**	_
DW = 1.49	(–0.01)	(0.84)	(–2.85)	(7.45)	
Switzerland[iv] (T = 34)					
Adj. R^2 = 0.69	–8.51	6.39	–0.72	0.53**	_
DW = 1.75	(–0.91)	(1.26)	(–1.39)	(4.24)	
UK (T = 34)					
Adj. R^2 = 0.83	–6.99**	5.77**	–0.03	0.80**	–0.16
DW = 1.94	(–4.03)	(4.10)	(–0.37)	(4.97)	(–1.05)

* significant $p < 0.05$ (one-sided test).
** significant $p < 0.01$ (one-sided test).
– not in the analysis.
X not in the analysis because of multicollinearity.
DW Durbin-Watson statistic.
[i] Partial autocorrelation lag 4 is significantly different from zero at 5% significance level.
[ii] Partial autocorrelation lag 4 and autocorrelation lag 4 are significantly different from zero at 5% significance level.
[iii] Unemployment lagged one year was used in this model as the model without this lagged variable appeared to be non-stationary (AR(1) > 1).
[iv] Autocorrelation lag 3 is significantly different from zero at 5% significance level.

Table V. Country-specific effects in time series regression analyses to explain net migration (rates × 1000) in former labour importing countries

Country	Year	Dummy	Source	Effect (t-value)	
Austria	1968	Recession 1967	United Nations (1998b)	–2.47**	(–2.59)
	1974–1979	Recession 1973	United Nations (1998b)	–3.37**	(–4.17)
	1981	Polish asylum seekers	Te Brake (1993)	3.01*	(2.49)
	1982	Return/transit Polish asylum seekers	Te Brake (1993)	–3.23**	(–2.72)
	1989	Fall iron curtain (Hungary)		4.39**	(3.46)
	1993–1998	*Asyl- und Fremdengesetz*	ICMPD (1994)	0.71	(0.59)
Belgium	1964	Recruitment agreement with Turkey and Morocco	Abadan-Unat (1995), Obdeijn (1993)	1.76**	(3.04)
	1968	Recession 1967		–0.58	(–1.02)
Denmark	1968	Recession 1967		–1.20*	(–1.78)
	1974–1979	Recession 1973	Pedersen (1999)	–0.77*	(–1.90)
	1995	Refugees from Bosnia	Pedersen (1999)	2.98**	(4.39)
France	1960–1961	Turmoil in Algeria	Barbour (1969)	2.59*	(2.64)
	1962	Independence Algeria	Barbour (1969)	16.87**	(24.81)
	1963–1964	French troops in Algeria[i]	Barbour (1969)	1.63**	(3.64)
	1974–1979	Recession 1973	Seifert (1997)	–0.95**	(–3.12)
FRG	1966–1967	Recession 1967		–5.87**	(–2.70)
	1974–1979	Recession 1973 (*Anwerbestop*)	Bretz (1996)	–3.95*	(–2.11)
	1989	Fall iron curtain		9.82**	(2.88)
Netherlands	1962	Conflict about New Guinea	Penninx et al. (1994)	0.94*	(1.78)
	1967	Recession 1967	Lakeman (1999)	–1.99**	(–3.75)
	1975	Independence Surinam	Penninx et al. (1994)	3.70**	(6.96)
	1979–1980	5 years after the independence of Surinam	De Beer (1997)	1.74**	(3.66)
Norway	1987	Refugees from Sri Lanka and Iran		2.09**	(3.60)
	1993	Refugees from Bosnia	Council of Europe (1995)	1.17*	(2.00)

Table V. Continued

Country	Year	Dummy	Source	Effect (t-value)	
Sweden	1967–1968	Recession 1967		–3.11**	(–3.49)
	1971–1979	(textile) production to Finland[ii]	Hammar (1995)	–2.17**	(–2.56)
	1989	Refugees from Iraq and Chile		1.20	(1.00)
	1993–1994	Refugees from former Yugoslavia		4.61**	(4.20)
Switzerland	1970–1974	Quota system	United Nations (1998b)	–2.46	(–1.47)
	1975–1979	Recession 1973		–6.39**	(–3.41)
UK	1987–1998	Visas making family migration difficult[iii]	Morris (1998)	–0.75	(–1.29)

* significant $p < 0.05$ (one-sided test).
** significant $p < 0.01$ (one-sided test).
[i] French troops protecting French citizens in Algeria did not withdraw until 1964 (Barbour, 1969). Hence, French citizens had two years time to leave Algeria after the independence.
[ii] From around 1970 the Finnish government started a policy programme to stop the loss of population and income to Sweden. One policy measure was to encourage Swedish textile industries to start production in Finland in stead of employing Finnish labour in Sweden (Hammar, 1995). The results of multivariate regression analyses to explain migration from Sweden to Finland in the period 1963–1975, conducted by Hietala (1978), demonstrate that the encouragement of direct investments in Finland by Swedish enterprises was the most effective economic policy to stimulate (return) migration from Sweden to Finland.
[iii] The correlation between GDP per capita in the UK and the policy dummy Visas making family migration difficult is 0.84.

visas for citizens of India, Bangladesh, Ghana, Nigeria and Pakistan in the UK 1987–1998) are *not* significant. This may be an indication that migration policies could be influenced by or coincide with the economic situation. The dummy variable "Refugees from Iraq and Chile" (Sweden 1989) was also not significant. This is not surprising as Gustafsson et al. (1990, in Lundh and Ohlsson, 1994) found a clear economic relationship between the Swedish business cycle and family and asylum immigration of Chileans. The very large and very significant dummy "Algerian independence" (1962) caused a very high adjusted R^2 in the model for France. The adjusted R^2 decreases to 0.78 if the year 1962 is excluded.

6. Country-specific analyses for former labour exporting countries

The former labour exporting countries with a population of more than one million are: Finland, Greece, the Irish Republic, Italy, Portugal, Spain and Yugoslavia. These countries exported labour until the recession of 1973/1974. Similar to

Table VI. The dominant receiving countries of former labour exporting countries

Former labour exporting country	Dominant receiving country
Finland	Sweden
Greece	Germany
Irish Republic	UK
Italy	Switzerland[i]
Portugal	France
Spain	France
Yugoslavia	Germany

[i] The stock of Italian nationals in Switzerland was larger than the stock of Italian nationals in Germany in the 1960s (Schmid, 1983). The stock of Italian nationals in Germany is larger since 1971 (Council of Europe, 1999; Haug, 2000). However, the increase in the Italian stock in Germany in comparison with the stock in Switzerland is mainly caused by a larger extent of family migration in Germany.

the analysis of the labour importing countries, in the models for former labour exporting countries only GDP per capita, unemployment and political and colonial dummy variables have been taken into account. The difference in GDP per capita with Sweden and the UK was also included in the analyses for Finland and the Irish Republic, respectively. In addition, we also looked at the effect of unemployment in the dominant receiving countries, listed in Table VI.

6.1. THE SPANISH CASE STUDY

Net migration in Spain was negative until 1974, caused by a large outflow of Spanish labour migrants. Many former labour migrants returned after the recession of 1973/1974 leading to a positive net migration figure in 1975–1978. In the 1980s Spain experienced low net emigration figures. After 1990 net migration was positive again, when labour immigrants and asylum seekers started to enter Spain on a large scale.

The policies of the early Franco regime were aimed at autarky. This resulted in low emigration figures in the period after the Second World War until 1959. The stabilization plan of 1959 liberalized international traffic of physical and human capital. Emigration to Western Europe was not only allowed, the government even stimulated it. The *Instituto Español de Emigratión* (IEE) was founded to encourage emigration. In the peak years (1964, 1969, 1971 and 1972) recorded emigration to Europe exceeded 100 thousand persons. In this period also a considerable number of emigrants went to America. However, this emigration decreased very fast in the 1960s and 1970s. After the recession of 1973/1974 emigration decreased to a level of less than 20 thousand (Spanish) emigrants a year (*Dirección General de Migraciones*, 1993 in Mansvelt Beck, 1993). In addition to the economic recession in Western Europe, the fast economic developments in Spain in the first half of the

Table VII. Results of time series regression analysis to explain net migration (rates × 1000) in Spain 1960–1998 (T = 33)

		Coefficient	t-value
	Constant	–4.52**	–10.67
Economic variable	GDP per capita (x 10^{-7})	3.99**	9.50
Country-specific variables	Stabilization plan	–1.51*	–2.19
	Recruitment stop 1974 in labour importing countries	1.55**	5.07
	Adjusted R^2	0.83	
	Durbin-Watson statistic	1.64	

* significant $p < 0.05$ (one-sided test).
** significant $p < 0.01$ (one-sided test).

1970s (the "Spanish miracle") contributed to this decrease as well (Mansvelt Beck, 1993).

Spanish labour migration to Western Europe appeared to be temporary. Many former labour emigrants returned in the period 1975–1978. After the peak year 1975, when almost 112 thousand recorded emigrants returned, this flow decreased. In the period 1980–1992 only 220 thousand recorded return migrants entered Spain. One fourth of these migrants returned from Latin-America (Source: *Dirección General de Migraciones*, 1993 in Mansvelt Beck, 1993). Starting in the second half of the 1970s Spain had to deal with new types of migration. A modest flow of pensioners from Northern and Western Europe migrated to Spain. Moreover, Spain received (mainly young) immigrants from Northern and Western Europe who wanted to work in the tourist industry. Spain joined the European Union in 1986. The effects of the integration of Spain in the European Union appeared to be limited (Van der Gaag and Van Wissen, 1999). At the end of the 1980s labour immigrants and asylum seekers appeared at the Spanish border. Most non EU-12 foreigners came from Morocco, Venezuela and the Philippines. Also for Portuguese Spain was a source of higher wages and better job opportunities (King and Rybaczuk, 1993).

The potential independent variables in the Spanish model are GDP per capita, unemployment in Spain, and unemployment in France. All potential independent variables correlate more than 0.80 in absolute terms with each other. This means that the three variables can only separately be estimated. The best model appeared to be the model with GDP per capita. In addition, the Spanish model includes two dummy variables: the stabilization plan (1960) and the recruitment stop in former labour importing countries after the economic recession of 1973/1974, which materialized in the period 1975–1979. The model needs no autoregression term (see Table VII).

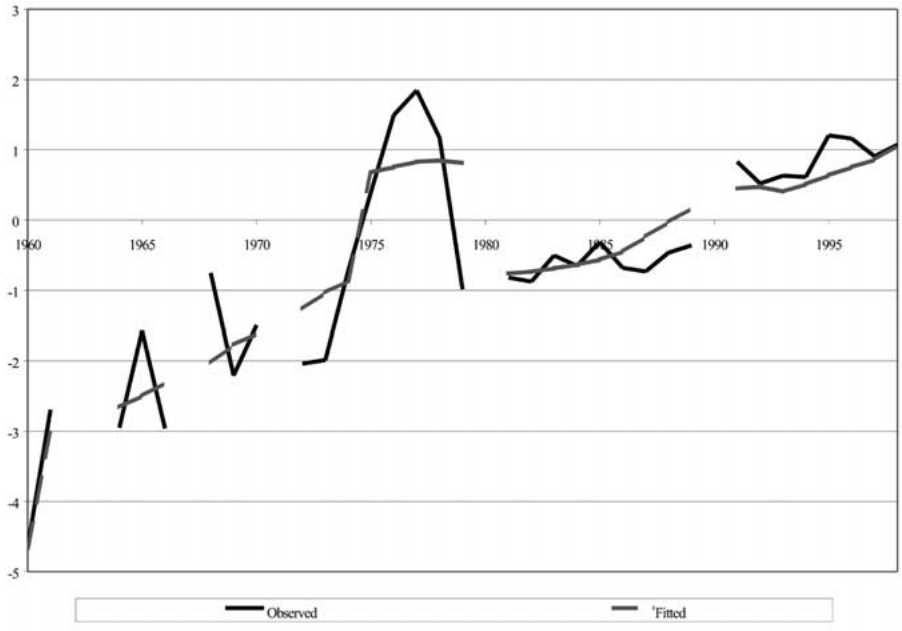

Figure 3. Observed and fitted net migration (rates × 1000) in Spain 1960–1998.

GDP per capita has a positive, significant effect on international migration in Spain.[7] Furthermore, the two dummy variables are significant and have the sign that should be expected. Figure 3 presents the observed and fitted net migration trend in Spain 1960–1998. Again, this figure shows no systematic over- or under-estimation.

6.2. OTHER FORMER LABOUR EXPORTING COUNTRIES

For reasons explained earlier, the models for Finland and the Irish Republic include the difference in GDP between the country itself and the dominant receiving country (Sweden, UK). In the case of Portugal no model with unemployment in Portugal has been analysed because in the mid 1970s unemployment was affected by international migration rather than the other way around: an exceptionally large number[8] of *retornados* from PALOP (*Países Africanos de Língua Oficial Portuguesa*) countries caused large net immigration in this period (Solé, 1995; Rocha-Trindade, 1995), leading to unemployment in the late 1970s. In addition to political and colonial dummy variables, census dummy variables were used as well for Italy (1962, 1972 and 1992). The comparable coefficients are presented in Table VIII, whereas the country-specific dummy variables are given in Table IX.

GDP per capita has a positive, significant effect on international migration in Greece and Spain. GDP per capita minus GDP per capita of the most important receiving country has a positive significant effect on net international migration in

Table VIII. Results of country-specific time series regression analyses to explain net migration (rates × 1000) in former labour exporting countries 1960–1998

	Coefficients (t-values)				
Country	Constant	GDPpc (x 10^{-4})	Unempl.	Unempl. RC	AR(1)
Finland (T = 35)		[Fin-Swe]			
Adj. R^2 = 0.82	3.15*	14.71**	–0.04	X	0.65**
DW = 1.81	(2.04)	(2.88)	(–0.36)		(4.45)
Greece (T = 38)					
Adj. R^2 = 0.63	–8.82**	15.36**	–0.55*	X	0.30*
DW = 2.12	(–3.75)	(5.09)	(–1.94)		(1.88)
Irish R.[i] (T = 36)		[IR-UK]			
Adj. R^2 = 0.81	12.56**	17.34**	–0.60*	X	0.74**
DW = 1.98	(3.54)	(2.48)	(–1.89)		(9.00)
Italy (T = 34)				[Switzerland]	
Adj. R^2 = 0.86	–1.95	1.00	X	0.63**	0.70**
DW = 1.65	(–1.26)	(0.80)		(3.63)	(4.85)
Portugal (T = 36)				[France]	
Adj. R^2 = 0.89	–16.03**	X	_	1.55*	0.79**
DW = 2.20	(–2.80)			(2.43)	(7.04)
Spain (T = 33)					
Adj. R^2 = 0.83	–4.52**	3.99**	X	X	_
DW = 1.64	(–10.67)	(9.50)			
Yugoslavia (T = 27)				[FRG]	
Adj. R^2 = 0.77	–0.52	X	X	0.14	0.58**
DW = 2.11	(–1.07)			(1.21)	(4.15)

* significant $p < 0.05$ (one-sided test).
** significant $p < 0.01$ (one-sided test).
– not in the analysis.
X not in the analysis because of multicollinearity.
DW Durbin-Watson statistic.
RC dominant receiving country.
[i] Partial autocorrelation lag 4 is significantly different from zero at 5% significance level.

Finland and the Irish Republic. The coefficients of Finland and the Irish Republic are rather similar, but the coefficients of Greece, Italy and Spain differ considerably.

Unemployment has a significant, negative effect on net international migration in Greece and the Irish Republic. Unemployment in the most important receiving country has a positive, significant effect for Italy and Portugal, and a positive but non-significant effect for Yugoslavia.

Table IX. Country-specific effects in time series regression analyses to explain net migration (rates × 1000) in former labour exporting countries

Country	Year	Dummy	Source	Effect (t-value)	
Finland	1969–1970	Pool after recession 1967 in labour importing countries		–7.32**	(–7.30)
	1971–1979	(textile) prod. to Finland	Hammar (1995)	1.31	(1.46)
Greece	1969	Pool after recession 1967 in labour importing countries		–3.69	(–1.45)
Italy[i]	1972	Census 1972		1.56**	(3.21)
	1992	Census 1992		1.78**	(3.83)
Portugal	1969	Pool after recession 1967 in labour importing countries		–8.90**	(–5.26)
	1974–1975	Independence PALOP countries	Rocha-Trindade (1995)	33.90**	(11.49)
Spain	1960	Stabilization plan	Mansvelt Beck (1993)	–1.51*	(–2.19)
	1975–1979	Recruitment stop in labour importing countries	Mansvelt Beck (1993)	1.55**	(5.07)
Yugoslavia	1968–1969	Labour agreement with Germany	Bretz (1996)	–4.09**	(–7.53)

* significant $p < 0.05$ (one-sided test).
** significant $p < 0.01$ (one-sided test).
[i] The dummy variable Census 1962 was not in the analysis as unemployment in Switzerland in 1961 was not available and the model comprised an autoregression term of the first order.

Similar to the model for former labour importing countries, all dummy variables have the sign that should be expected. Again most of the dummy variables are significant.

7. A pooled model for Western Europe

Two pooled cross-sectional time series models have been estimated: a cross-sectionally heteroskedastic and a cross-sectionally correlated model. The expected error term in a cross-sectionally heteroskedastic model may vary between cross-sections. Countries with very large net immigration or emigration are expected to have relatively larger error terms than countries with less extreme net migration. If we assume that general mechanisms underlie international migration processes in countries in a certain area, we may expect that a seemingly unrelated regression (SUR) model, which is a cross-sectionally correlated model, is the most appropriate model. Heteroskedasticity is a characteristic of this model too. The difference between the two models is that, in contrast to a cross-sectionally heteroskedastic

model, a cross-sectionally correlated model assumes that the cross-sectional units are mutually dependent (Kmenta, 1986; Judge et al., 1988). However, the empirical results show that a seemingly unrelated regression model proved to be a better model than a cross-sectionally heteroskedastic model (three in stead of two significant variables).

Table X present the results for the pooled cross-sectional time series analysis[9] for all Western European countries simultaneously, including both former labour importing and exporting countries. No multicollinearity could be detected in this model. Therefore, all variables, and thus all hypotheses could be tested simultaneously.

As we can see in Table X the pooled cross-sectional time series analysis supports the hypotheses 2, 3 and 4: unemployment has a significantly negative effect on net international migration; educational level and the migrant stock have a significantly positive effect on net international migration. On the other hand, there is no strong support for hypothesis 1: GDP per capita does have a positive effect on net international migration, but this effect is not significant. All dummy variables in the pooled model for Western Europe (except visas making family migration difficult in the UK in 1987 and the recruitment stop in labour importing countries in Spain in 1974) have the sign that should be expected. The fact that the latter dummy has a (very small) negative effect is quite remarkable as this dummy variable has a significantly positive effect in the country-specific analysis for Spain. All policy dummy variables are significant, with only two exceptions (the already mentioned dummy for the UK in 1987–1998 and the immigration restrictions in Germany 1993–1998).

8. Conclusions

The aim of this paper was to estimate the influence of economic determinants on net international migration in Western Europe in the period 1960–1998. The economic determinants used are GDP per capita, unemployment and educational level. Moreover, the effect of the migrant stock was also taken into account. Country-specific information was included as well, to control for policy and other interventions. Not all the effects are significant, but the country-specific and pooled analyses demonstrate that GDP per capita has a positive effect and unemployment a negative effect on net international migration. The analyses for Finland and the Irish Republic show that the difference in GDP per capita between a sending and a receiving country has a positive effect on net international migration in the sending country. The pooled analysis for Western Europe supports the hypotheses that educational level and migrant stock have a positive effect on net international migration.

Many dummy variables have been used in the analyses to control for country-specific effects. Several of these policy dummy variables are not significant

Table X. Results of pooled time series regression analysis to explain net migration (rates × 1000) in Western Europe 1960–1998 (N × T = 575)

Country	Year	Variable	Coefficient	t-value
		Constant	–1.23*	–2.07
		GDP per capita (x 10^{-8})	7.32	1.50
		Unemployment	–0.08**	–3.92
		Years of education	0.26**	3.98
		Migrant stock (x 10^{-3})	9.57**	2.59
1	1	Recession 1967	–1.87**	–9.03
2	2	Recession 1973	–0.73**	–3.40
3	3	Pool after recession 1967 in labour importing countries	–4.11**	–8.05
4	4	Fall iron curtain	7.85**	8.11
5	5	Refugees from former Yugoslavia	2.20**	9.02
Austria	1981	Polish asylum seekers	1.82*	2.05
	1982	Return/transit Polish asylum seekers	–4.87**	–5.52
	1993–1998	*Asyl- and Fremdengesetz*	–2.23**	–2.47
Belgium	1964	Recruitment agreement with Turkey and Morocco	1.73**	3.74
France	1962	Independence Algeria	15.64**	52.43
	1963–1964	French troops in Algeria	1.35**	4.94
United Germany	1993–1998	Immigration restrictions	–1.85	–1.31
Netherlands	1962	Conflict about New Guinea	1.07**	2.81
	1975	Independence Surinam	3.98**	10.28
	1979–1980	5 years after independence Surinam	2.39**	6.39
Norway	1987	Refugees from Sri Lanka and Iran	2.42**	6.36
Sweden	1971–1979	(textile) production to Finland	–1.46**	–2.73
	1989	Refugees from Iraq and Chile	3.01**	4.11
Switzerland	1970–1974	Quota system	–2.29*	–1.86
UK	1987–1998	Visas making family migration difficult	0.01	0.02
Finland	1971–1979	(textile) production to Finland	1.86**	3.35
Italy	1962	Census 1962	0.53	1.07
	1972	Census 1972	1.70**	3.72
	1992	Census 1992	1.68**	3.69

Table X. Continued

Country	Year	Variable	Coefficient	t-value
Portugal	1974–1975	Independence PALOP countries	36.35**	16.62
Spain	1975–1979	Recruitment stop in labour importing countries	–0.04	–0.08
Yugoslavia	1968–1969	Labour agreement with Germany	–3.70**	–9.38
		AR(1)	0.76**	31.16
		Adjusted R^2	0.79	
		Durbin-Watson statistic	1.89	

* significant $p < 0.05$ (one-sided test).
** significant $p < 0.01$ (one-sided test).
1 Austria, 1968; Belgium, 1968; Denmark, 1968; FRG, 1966–1967; the Netherlands, 1967 and Sweden, 1967–1968.
2 Austria, 1974–1979; Denmark, 1974–1979; France, 1974–1979; FRG, 1974–1979 and Switzerland, 1975–1979.
3 Finland, 1969–1970; Greece, 1969 and Portugal, 1969.
4 Austria, 1989 and FRG, 1989.
5 Denmark, 1995; Norway, 1993 and Sweden, 1993–1994.

(especially in the country-specific analyses). This might be an indication that economic determinants often have an effect on or coincide with migration policies.

A seemingly unrelated regression model of pooled time series of European countries, which assumes that the cross-sectional units are mutually dependent, was the best model to estimate economic determinants of net international migration in Western Europe. Therefore, we may conclude that countries cannot be seen as independent units with respect to international migration. Common unmeasured underlying mechanisms may affect international migration in Western European countries. Examples of such underlying mechanisms are the economic position of Western Europe in relation to the rest of the world or hot spots, which cause refugee flows to Western Europe. In addition, (economic) developments in certain European countries may affect international migration in other European countries. Unemployment in Switzerland, for instance, has a positive, significant effect on net international migration in Italy. A similar relation exists between unemployment in France and net international migration in Portugal. Furthermore, we saw that the difference in GDP per capita between the country itself and its most important receiving country has a positive, significant effect on net international migration in the Irish Republic and Finland. In order to study the interrelations between Western European countries more comprehensively, net migration figures are not appropriate. Instead a migration matrix of flows to and from each Western European country, as well as to and from the outside world should be used. Unfortunately,

international migration data do not (yet) provide the information to construct a complete table.

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Notes

[1] Yugoslavia did not maintain the communist "rule" of full employment. In response to unemployment, the Yugoslav authorities allowed Yugoslav workers to work abroad.

[2] The capital dilution effect denotes the detrimental effect of population growth operating via a decrease in the capital/labour ratio, resulting in lower production and consumption per capita.

[3] For Greece, the Irish Republic, Spain and the UK, Eurostat data have been used, as the Council of Europe data for these countries are not complete. Recent values for non-register (census) countries are often estimates. The data for former Yugoslavia are the sum of Slovenia, Croatia, Bosnia Herzegovina, Yugoslavia (Serbia and Montenegro) and the Former Yugoslavian Republic of Macedonia.

[4] The data for Belgium 1961, 1970, 1981, 1988 and 1995, Spain 1962, 1963, 1967 and 1971, Sweden 1960 and Yugoslavia 1962 were left out of the analyses for this reason. In addition, the data for the FRG 1970 and Spain 1980 are inexplicably high in comparison with surrounding years and were also left out.

[5] The difference in the migrant stock between two observations has been distributed over the years between these observations proportional to the net migration in the period between these observations for labour importing countries (except Belgium 1975–1985, Norway 1960–1975 and the UK 1960–1984), Finland 1985–1998, and Greece 1985–1998. The values before 1965 and after 1990 have been estimated using the migration stock in 1965 and 1975, and 1985 and 1990, respectively, and net migration 1965–1975 and 1985-1990, respectively. In case of missing net migration data, the average of the four surrounding years (if available) has been used. Net migration rates for Switzerland before 1965 have been divided by two as the migrant stock in 1960 and 1961 became negative. The intermediate values for former labour exporting countries (except Finland and Greece after 1985), Belgium 1975–1985, Norway 1960–1975 and the UK 1960-1985 are linear estimates between the two fixed values. Before 1965 and after 1990 the linear trend between 1965–1975 and 1985–1990, respectively has been extrapolated.

[6] The relationship between the inflow of asylum seekers and registered immigration is rather complex in the Netherlands and far from being one-to-one. An asylum seeker is counted as an immigrant only when he/she registers with the municipal population register, which might never happen or only after a considerable time lag.

[7] The models with unemployment in Spain and unemployment in France also provided a coefficient which is significant and has the sign that should be expected. However, the average absolute t-value is lower in the models with unemployment. Moreover, the model with unemployment in Spain needs an autoregression term of the first order to correct for autocorrelation.

[8] According to computed net migration figures, Portugal experienced a net migration of 619 thousand in the period 1974–1979. This is about 7.2% of the total population in 1974.

[9] An autoregression term of the first order had to be used to rid the model of autocorrelation.

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