

The Determinants of Migration Flows in Europe

Ulrike Steins*

Introduction

The Treaty of Rome, which was signed in 1957, laid the foundation for a European common market. The member states, i.e. France, Germany, Italy and the Benelux countries, set themselves the target to create an economic area with free movement of goods, services and workers across borders (European Union, 2012). This union of states was expanded in the following years, so that in 2012 the European Union comprises 27 member states. However, the current European sovereign debt crisis has questioned the construction of the European Union. A public debate is underway on which structural reforms are needed to ensure the cohesion of the EU in the future.

One fundamental problem is the lack in geographic labor mobility. The simultaneous presence of high unemployment rates and labor shortages indicates an inefficient allocation of resources. Bonin et al. (2008) argue that the economic gain of higher labor mobility would outweigh negative externalities such as potential downward pressure on wages. Thus, by improving the adjustment of labor market imbalances, labor mobility within the European Union would have a pos-

* Ulrike Steins received her degree in Economics (M. Sc.) from the University of Bonn in 2012. The present article refers to her master thesis under the supervision of Prof. Dr. Klaus F. Zimmermann, which was submitted in August 2012.

itive welfare effect in total.

Although migration flows are too small, there are already people who move within the EU. The determination of forces that have driven these migration flows may give indication which policies could efficiently increase labor mobility. This work analyzes bilateral migration within the European area from a macroeconomic perspective. Beneath economic and demographic factors, such as income differences, the influence of past political events is also analyzed. This accounts for the fact that the identification of migration determinants may serve as a basis for policies intended on higher labor mobility. For instance, if the Maastricht Treaty, which eased free movement within the EU, affected migration flows in a positive way, this would suggest that a change in institutional settings could be a way to increase mobility. It is focused on the migration flows between Germany and a panel of the remaining first eleven member states (EU-11) for the following reasons. First, definitions of migration flows differ within the EU. By limiting the analysis to Germany, data from one source can be used so that comparability issues are avoided. Second, Bonin et al. (2008) find that there is a great disparity among EU countries regarding migration patterns so that pooling countries for the analysis on migration in Europe might not be reasonable.

The question which factors drive migration flows has been discussed in various empirical studies. Those studies that use macro panel data can be broadly distinguished into two groups. On the one hand, there is a group of empirical papers that study bilateral migration flows with underlying data of both various origins and destination countries (Pedersen, Pytlikova, and Smith, 2008; Ortega and Peri, 2009; Mayda, 2010). On the other hand, there are studies that examine the migration flows from and to one specific country (Karemera, Oguledo, and Davis, 2000; Bertoli and Moraga, 2011; Brücker, Siliverstovs, and Trübswetter, 2003). One issue that arises when bilateral migration flows are analyzed is that potential

migrants have to choose between various destination countries. This means the attractiveness of other countries influences the migration decision. Several studies do not consider this aspect in the empirical specification, which may bias results. Based on Bertoli and Moraga (2011), it is controlled for the presence of alternative destinations by applying the so-called Augmented Mean Group estimator (Eberhardt and Bond, 2009). It includes an additional regressor during the estimation procedure which measures the average dynamic evolution of explanatory variables across countries. This estimation method is also an appropriate choice as it is robust to cross-sectional dependence across countries and non-stationary variables, which is likely to be an issue in this sample (Brücker, Siliverstovs, and Trübswetter, 2003).

Determinants of Migration

Most of the empirical studies refer to a model of migration in which an individual maximizes its utility by comparing the outcome when staying in the source country with the one in potential destination countries. Thereby, the net utility of moving takes into accounts the costs and risks of migration. If the utility of moving is greater than the one of staying, the individual decides to migrate. The sum of these individual decisions causes migration flows from a sending country i to a destination country j (Clark, Hatton, and Williamson, 2007).

The empirical model is based on Pedersen, Pytlikova, and Smith (2008). A migration flow from country i to country j at time t is modeled in the following

way:

$$\begin{aligned} \ln(m_{ijt}) = & \beta_{1ij} \ln(s_{ijt-1}) + \underbrace{\beta_{2ij} \ln(Y_{it-1}) + \beta_{3ij} \ln(U_{it-1}) + \beta_{4ij} \ln(P_{it-1})}_{\text{Push factors}} \\ & + \underbrace{\beta_{5ij} \ln(Y_{jt-1}) + \beta_{6ij} \ln(U_{jt-1})}_{\text{Pull factors}} + \beta_{7ij} T_{ijt} + c_{ij} + u_{ijt} \end{aligned} \quad (1)$$

where m_{ij} represents the migration flow from i to j and s_{ijt-1} stands for the stock of country i 's immigrants already residing in country j , which accounts for network effects. In order to achieve comparability across countries, m_{ij} and s_{ijt-1} are expressed in relative terms. Push and pull factors of the source and destination country are accounted for by real GDP per capita as a proxy for income (Y_{it-1} and Y_{jt-1}) and the unemployment rate of the sending and destination country (U_{it-1} and U_{jt-1}). Besides, the share of young people in the source country's population (P_{it-1}) is taken as a demographic push factor. The explanatory variables are lagged one period, which accounts for the fact that potential migrants need time to gather information before they decide to move to another country (Pedersen, Pytlikova, and Smith, 2008). In addition, issues of reverse causality are avoided. c_{ij} captures country fixed effects that are constant over time and $\beta_{1ij}, \dots, \beta_{4ij}$ are the country-specific slope parameters. T_{ijt} is a linear trend variable and u_{ijt} is an error term. Except for the linear trend, all variables that vary over time are taken in logs. By doing so, the coefficients represent the partial elasticities of migration flows with respect to the corresponding explanatory variable (see Wooldridge, 2002, pp.15–18).

The following hypotheses regarding the explanatory variables are stated (see Table 1): β_{1ij} , the coefficient of s_{ijt-1} in (1), should have a positive sign. The more immigrants already live in a destination country, the higher the migration inflows. The higher the income in the destination country or the lower the in-

come in the source country, the more likely does an individual decide to move. Hence, β_{2ij} , the coefficient of Y_{it-1} in (1), is assumed to have a negative sign, whereas β_{5ij} , the coefficient of Y_{jt-1} , is expected to have a positive sign. A high unemployment rate decreases the probability of finding a job, so that earning opportunities are lowered. As a result, the push factor U_{it-1} should have a positive coefficient, whereas the corresponding pull factor U_{jt-1} should have a negative one, i.e. $\beta_{3ij} > 0$ and $\beta_{6ij} < 0$ (see Table 1).

Clark, Hatton, and Williamson (2007) argue that the individual's utility can be understood as the future income stream. They conclude that if an individual expects a higher income in the destination country, the utility gain is the greatest for young individuals due to their longer working life. To put it differently, the higher the share of young people in the population is, the more people decide to move. Hence, the effect of the push factor P_{it-1} should be positive, i.e. $\beta_{4ij} > 0$. As mentioned before, the empirical analysis focuses on the migration flows from and to Germany. Thus, regarding migration inflows, the sample consists of one single destination country, Germany, and multiple source countries, the member states of the EU. On the contrary, there is a single country of origin and multiple destination countries when outflows from Germany to the EU member states are analyzed. Applying this to equation (1), induces the following two equations for inflows to and outflows from Germany, respectively:

$$\begin{aligned} \ln(m_{it}) = & \beta_{1i} \ln(s_{it-1}) + \underbrace{\beta_{2i} \ln(Y_{it-1}) + \beta_{3i} \ln(U_{it-1}) + \beta_{4i} \ln(P_{it-1})}_{\text{Push factors}} \\ & + \underbrace{\beta_{5i} \ln(Y_{Gt-1}) + \beta_{6i} \ln(U_{Gt-1})}_{\text{Pull factors}} + \beta_{7i} T_{it} + c_i + u_{it} \end{aligned} \quad (2)$$

and

$$\ln(m_{jt}) = \beta_{1j} \ln(s_{jt-1}) + \underbrace{\beta_{2j} \ln(Y_{Gt-1}) + \beta_{3j} \ln(U_{Gt-1}) + \beta_{4j} \ln(P_{Gt-1})}_{\text{Push factors}} + \underbrace{\beta_{5j} \ln(Y_{jt-1}) + \beta_{6j} \ln(U_{jt-1})}_{\text{Pull factors}} + \beta_{7j} T_{jt} + c_j + u_{jt} \quad (3)$$

In the following, equations (2) and (3) will be referred to as the basic versions with respect to inflows and outflows, respectively.

Beneath economic and demographic factors, it is also accounted for political events which might have restrained or eased bilateral migration between Germany and the European Union. This is done by including dummy variables, denoted as d_i , which are zero until including the year of a political event and one afterwards. This implies two assumptions: first, a political event will impact migration flows with a one year delay as individuals need time to gather information before they decide to migrate. Second, the event's effects will be lasting. Beneath the direct impact of political events their interaction with push and pull factors is measured. In particular, it is analyzed whether a political occasion has strengthened or reduced the effects of these factors on migration. Following Mayda (2010), this interaction is measured by multiplying the dummy variables with push and pull factors, respectively.

Four important political changes, concerning Germany and the EU-15, are considered: The German Reunification in 1990, the Maastricht Treaty coming into force in 1993, the Schengen Agreement in 1995 and 2000, respectively, and the Introduction of the Euro in 1999. It is expected that the reunification had negative effects both on migration inflows directly and indirectly through a reduction of push and pull effects. The same effect is assumed to be true for the outflows. The Maastricht Treaty, the Schengen Agreement and the Introduction of the Euro are

expected to have positively influenced migration flows between Germany and the EU-11.

The corresponding dummy variables that account for a specific event are denoted as $d_i^{\text{Reunification}}$, $d_i^{\text{Maastricht}}$, d_i^{Schengen} and d_i^{Euro} , respectively. Table 2 lists the different political variables that are added to the basic version. For the sake of clarity, only the extensions regarding the basic version of inflows are listed. The basic version of outflows is extended analogously. In total there are four modifications of the basic version: first, dummies of the political events are added solely. In modifications two, three and four, the respective push and pull interaction terms of the GDP per capita, the unemployment rates and the share of the young population are added.

Estimation Strategy

DESTATIS (2012a) and DESTATIS (2012b), the German Federal Statistical Office, provides times series on migration flows between Germany and the EU-11 over the period from 1986 until 2011 so that there are 286 observations in total. The economic explanatory variables, i.e. real GDP per capita and the unemployment rate, are taken from OECD (2012a) and OECD (2012b). The real GDP per capita is GDP per capita in US-dollars adjusted for purchasing power parities and at constant prices with base year 2005 so that it is comparable both across countries and across time. Up to 1990, all used data refers to West Germany. Afterwards, the unified Germany is considered. One problem with the data is that the nationalities of migrants are not distinguished. Everyone who moves to and from Germany is accounted as an immigrant and emigrant, irrespectively of the citizenship. In 2011, 20% of the inflows to Germany from the EU-11 were people of German nationality. At the same time, only 31% of the outflows from Germany to a state of the EU-11 were German citizens. These numbers suggest

that the data on migration flows includes a substantial amount of people with a nationality different to that of the sending country. This might influence the coefficient estimates of the stock of immigrants residing in the destination country. The data structure is likely to be both autocorrelated due to the long time period and cross-sectional dependent. The latter issue may arise due to the small sample of EU countries which have close economic ties. In addition, non-stationarity of the macroeconomic variables might be a problem. Using Monte Carlo simulations, ?? find that so called Common Correlated Effects mean group estimator (CCE) developed by Pesaran (2006) is robust to non-stationarity and spatial correlations. Besides, Bertoli and Moraga (2011) show that the estimation procedure of the CCE can account for multilateral resistance to migration. The CCE assumes heterogeneous slope parameters across units. In addition, both the explanatory variables and the error term of the unit specific regression equations are assumed to be influenced by unobservable common factors, whereby the impact of these factors differs across units. To control for the unobservable common factors, i.e. for the spatial dependence, panel averages of the explanatory and dependent variables are included as additional independent variables in the regression equation. This equation is estimated for each unit separately. Afterwards, the individual coefficient estimates are averaged over all panel units. However, one issue of the CCE is that the number of estimated parameters is rather high which means that the results may become imprecise in small samples. Eberhardt and Bond (2009) developed an estimator, the Augmented Mean Group estimator (AMG), which assumes the same econometric model as the CCE. Their Monte Carlo simulations indicate that the AMG performs equally well as the CCE in the presence of cross-sectional dependence and non-stationarity. The estimation procedure differs, though. First, the regression equations are set up in first differences and year dummies are included. At that stage, the observations are pooled, i.e. slope

parameters are assumed to be homogeneous across units. The estimated coefficients of the year dummies represent a common dynamic process of the variables. In a second step, this common dynamic process is included as an explicit variable in the originally regression equation. Again, the regression equation is estimated for each unit individually and the coefficients averaged across units. The AMG estimator has the advantage that just one variable, the common dynamic process, is added to the regression equation. Hence, for the estimation of migration determinants this latter estimator is employed instead of the CCE. In order to analyze if and how the "common dynamic process" of the AMG influences estimation results, the estimates of the AMG are compared to those of OLS with Newey-West standard errors.

Results

Table 3 in the appendix displays results of both the averaged and individual AMG coefficients plus the estimates of the OLS regression with Newey-West standard errors. The common dynamic process that is included in the regression equation during the AMG estimation procedure seems to impact migration flows substantially: its parameter estimates are significant on the individual level for the majority of countries. Comparing the AMG and OLS outcomes shows a considerable difference with regard to coefficient estimates. This is particularly true for those countries whose coefficient of the common dynamic process is significant. The considerable influence of the common dynamic process on estimation results underpins the arguments that estimation results become indeed biased if an estimator is used that is not robust to issues of cross-sectional dependence and non-stationarity. Hence, the following analysis concentrates on the estimation results of the AMG.

The stock of immigrants, which accounts for network effects, is either insignifi-

cant or even seems to have a negative effect on inflows to Germany regarding the majority of countries. These results may be due to the data structure, as the nationalities of migrants are not distinguished. The push effect of income, i.e. GDP per capita, is significant for the majority of countries. As predicted by theory the coefficients are negative. The pull effect of the German GDP per capita only has a significant influence on inflows from a few countries. However, the respective parameter estimates are all positive. This suggests that a high income in the destination country indeed pulls migrants. When the individual parameter estimates are averaged, the push and pull effect of sending and destination country's GDP per capita, respectively, are still significant. This indicates that inflows from the EU-11 react similarly to changes in income. The unemployment rate does not seem to influence migration flows to Germany. This result supports the point discussed above that labor is not efficiently adjusted within the European Area. The share of young people affects migration inflows only with respect to a few countries.

Beneath economic and demographic factors, the influence of political variables is analyzed. Thereby, both the direct effects of political events and the indirect effects via a change in push and pull effects are evaluated (see Table 4 and 5). However, the results show that none of the political events seem to have clearly changed migration patterns regarding inflows to Germany from the EU-11. The direct effect of political events measured via the inclusion of dummy variables is close to zero. In addition, the indirect effect measured by the interaction variables does also not allow for an unambiguous interpretation, either. Tables 6 to 8 display estimates regarding outflows. The comparison between estimation results of outflows with those of inflows reveals considerable differences regarding the forces that drive these flows. First, the push and pull effects of GDP per capita that are predicted by theory are clearly identified for inflows to Germany.

However, this does not apply to outflows. The coefficients of GDP have different signs across countries. Estimation results with respect to unemployment rates and the share of young people are similar for in- and outflows. The effects of unemployment rates are rather low. The parameters with respect to the share of young people are significant for several countries, their directions differ though. The main difference with respect to political events is the influence of GDP per capita interaction variables. There was no clear effect for the inflows, while estimation results of outflows suggest that the Maastricht Treaty and, particularly, the Schengen Agreement strengthened push and pull effects assumed by theory. Again, the interpretations regarding the influence of political events have to be seen with caution, as it is not controlled for events in the EU-11 countries.

Conclusion

Within the European Union labor mobility is too low, which induces an inefficient allocation of resources. Particularly with regard to the demographic change and the resulting shortage of labor and skills, the improvement of labor adjustment is an important issue. This thesis aimed at the determination of forces of previous migration flows in order to identify potentials to increase mobility of European citizens. To obtain consistent results, the AMG estimator was applied to the empirical specification of migration flows. The comparison between OLS and AMG estimation results indicated substantial differences among estimation results, which confirmed that estimation results are indeed biased if the issues discussed above are not considered. In addition, the results affirmed that the adjustment of labor does not work well within the European area. Both migration inflows to Germany and outflows from Germany were not driven by the evolution of unemployment rates. In contrast, results of inflows to Germany suggest that incomes of the sending and destination country do seem to influence migration

flows. This is in line with the findings of Bonin et al. (2008, p. 8) that the prospect of a higher income is a key factor of the migration decision. There is no clear evidence that either the Maastricht Treaty or the Schengen Agreement or the Introduction of the Euro has strengthened mobility.

One aspect that has been left out in the analysis is the influence of education on migration flows. The country's level of education could not be included as there was no consistent data source. However, particularly with regard to the imminent skill shortage in the European Union it would be interesting to see whether a high level of education induces high mobility of people and consequently a more effective allocation of labor. A further intriguing topic would be the question if and how the European debt crisis has changed labor mobility within the EU. Several member states have to make massive cuts which also concern to social welfare systems. This might increase the pressure to migrate to another member state of the EU if it offers better employment opportunities.

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Appendix

Explanatory variables	s_{ij}	Push			Pull	
		Y_i	U_i	P_i	Y_j	U_j
Expected effect	+	-	+	+	+	-

Table 1: Expected effects of explanatory variables on migration flows

Modification	1	2	3	4
Dummy	d_i^{Event}			
Push factors		$d_i^{\text{Event}} \times \ln(Y_{it-1})$	$d_i^{\text{Event}} \times \ln(U_{it-1})$	$d_i^{\text{Event}} \times \ln(P_{it-1})$
Pull factors		$d_i^{\text{Event}} \times \ln(Y_{Gt-1})$	$d_i^{\text{Event}} \times \ln(Y_{Gt-1})$	

d_i^{Event} represents $d_i^{\text{Reunification}}$, $d_i^{\text{Maastricht}}$, d_i^{Schengen} and d_i^{Euro} , respectively

Table 2: Political variables added to the basic version of inflows

Countries		Independent variables						Common dynamic process
		$\ln(s_{it-1})$	$\ln(Y_{it-1})$	$\ln(U_{it-1})$	$\ln(P_{it-1})$	$\ln(Y_{Gt-1})$	$\ln(U_{Gt-1})$	
EU-11	AMG	0.17 (0.19)	-2.14** (0.87)	0.15 (0.12)	-0.34 (0.86)	1.34* (0.76)	0.02 (0.14)	0.85*** (0.28)
BE	OLS	0.36 (0.28)	-1.40** (0.51)	0.17*** (0.05)	-0.77 (0.48)	0.17 (0.57)	-0.25*** (0.06)	-
	AMG	0.44 (0.29)	-1.24** (0.58)	0.15* (0.09)	-0.55 (0.68)	-0.12 (0.79)	-0.23*** (0.08)	0.05 (0.10)
DK	OLS	-0.06 (0.21)	-7.71 (6.07)	-0.43 (0.59)	-0.78 (1.55)	9.44*** (1.81)	0.64* (0.33)	-
	AMG	-0.37 (0.43)	-8.88** (3.87)	-0.52 (0.35)	-2.13 (1.43)	7.64*** (2.5)	0.65** (0.32)	0.73* (0.43)
FR	OLS	0.5 (1.16)	-3.46** (1.47)	0.54*** (0.17)	-1.39 (2.33)	4.00* (1.94)	-0.60** (0.25)	-
	AMG	0.63 (1.00)	-3.64* (2.04)	-0.13 (0.63)	-2.77 (3.86)	0.81 (3.32)	-0.33 (0.32)	0.84 (0.64)
GR	OLS	-3.23*** (1.08)	-5.10*** (0.84)	0.18 (0.49)	4.02** (1.87)	1.67 (1.96)	-1.13*** (0.21)	-
	AMG	-2.69*** (0.79)	-3.03** (1.19)	0.49 (0.35)	3.66*** (1.34)	-1.64 (2.38)	-1.13*** (0.19)	0.94** (0.44)
IR	OLS	0.03 (0.17)	-1.64 (1.67)	0.56* (0.30)	4.12** (1.88)	7.28*** (1.37)	-0.52 (0.35)	-
	AMG	0.15 (0.19)	-0.4 (1.10)	0.30 (0.23)	-0.52 (2.04)	3.26** (1.43)	0.04 (0.27)	1.47*** (0.33)
IT	OLS	1.07 (0.78)	-4.01*** (1.38)	0.41 (0.34)	2.38 (1.48)	1.13 (4.34)	0.26 (0.17)	-
	AMG	0.74 (0.47)	-5.95*** (0.87)	0.37 (0.24)	-3.62*** (1.28)	-0.16 (1.65)	0.31* (0.12)	2.06*** (0.33)
LU	OLS	-0.04 (0.28)	0.56 (0.49)	0.03 (0.06)	3.78*** (0.56)	2.4** (1.07)	0.45** (0.17)	-
	AMG	-0.01 (0.28)	0.56 (0.49)	0.03 (0.09)	3.62*** (0.62)	2.52* (1.29)	0.42** (0.17)	-0.08 (0.17)
NL	OLS	-0.74** (0.32)	-1.85** (0.82)	-0.06 (0.10)	0.80 (0.53)	3.78*** (0.72)	0.32*** (0.09)	-
	AMG	-0.76** (0.37)	-2.05* (1.24)	-0.06 (0.12)	0.73 (0.62)	4.04*** (1.25)	0.30* (0.18)	-0.05 (0.20)
PT	OLS	-3.75*** (1.24)	-4.22 (4.27)	1.44** (0.57)	32.12*** (6.54)	9.98*** (3.28)	-1.52*** (0.37)	-
	AMG	-0.16 (1.54)	-2.13 (2.71)	0.76 (0.49)	11.58 (8.15)	1.61 (3.94)	-0.21 (0.57)	2.94*** (1.01)
SP	OLS	0.59** (0.25)	0.53 (2.12)	0.34 (0.30)	0.05 (1.26)	0.61 (0.77)	-0.21 (0.16)	-
	AMG	1.04*** (0.35)	1.51 (1.83)	0.39 (0.26)	-1.2 (1.39)	-0.55 (1.14)	-0.07 (0.16)	0.48* (0.28)
UK	OLS	-0.77*** (0.22)	-2.35*** (0.69)	0.11 (0.17)	-1.34*** (0.31)	3.53*** (0.63)	-0.24** (0.09)	-
	AMG	0.02 (0.29)	-2.41*** (0.63)	-0.15 (0.13)	0.42 (0.53)	0.94 (0.71)	-0.03 (0.08)	0.71*** (0.14)

Dependent variable: $\ln(m_{it})$. Additional controls: T_{it} , c_i . 'Common dynamic process' included as additional independent variable during AMG estimation procedure. Estimates of EU-11 are the averages of country specific coefficients. Numbers refer to the period 1986–2011. Standard errors are in brackets. For the OLS regression Newey-West standard errors are computed. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table 3: Influence of economic and demographic factors on inflows to Germany (results of OLS and AMG estimation)

Countries	Independent variables			
	$d_i^{\text{Reunification}}$	$d_i^{\text{Maastricht}}$	d_i^{Schengen}	d_i^{Euro}
EU-11	0.03 (0.07)	-0.06 (0.07)	0.05 (0.03)	0.00 (0.04)
BE	-0.02 (0.05)	-0.04 (0.05)	0.08** (0.04)	0.03 (0.04)
FR	-0.54** (0.21)	-0.17 (0.31)	0.12 (0.18)	0.13 (0.23)
GR	-0.08 (0.17)	-0.29* (0.18)	-0.17 (0.12)	-0.14 (0.16)
IR	0.28** (0.12)	-0.05 (0.14)	-	-0.09 (0.13)
IT	-0.14 (0.09)	0.34** (0.13)	0.12 (0.07)	-0.08 (0.09)
LU	0.08 (0.09)	-0.07 (0.09)	0.18** (0.07)	0.03 (0.08)
NL	0.09 (0.11)	0.17 (0.11)	0.03 (0.10)	0.19** (0.08)
PT	0.31 (0.26)	0.36 (0.32)	-0.28 (0.23)	-0.38* (0.21)
SP	-0.14** (0.07)	-0.12 (0.08)	0.09* (0.05)	0.10 (0.06)

Dependent variable: $\ln(m_{it})$. Additional controls: $\ln(s_{it-1})$, $\ln(Y_{it-1})$, $\ln(U_{it-1})$, $\ln(P_{it-1})$, $\ln(Y_{Gt-1})$, $\ln(U_{Gt-1})$, T_{it} , c_i . Estimates of EU-11 are the averages of country specific coefficients. Numbers refer to the period 1986–2011. Standard errors are in brackets. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table 4: Influence of political events on inflows to Germany (results of AMG estimation)

Countries	Independent variables				
	$\ln(Y_{it-1})$	$\ln(Y_{it-1}) \times$			
		$d_i^{\text{Reunification}}$	$d_i^{\text{Maastricht}}$	d_i^{Schengen}	d_i^{Euro}
EU-11	-5.67** (2.51)	2.62 (4.42)	2.23 (1.71)	-0.80 (2.79)	0.46 (1.2)
DK	-9.74** (3.82)	-9.96 (6.79)	6.84 (8.27)	15.44*** (4.24)	-
GR	-15.56*** (2.88)	23.19*** 5.95	-29.57 (18.19)	19.38 (20.51)	-0.31 (3.29)
IT	-15.44*** (5.47)	18.96*** (6.02)	-	-12.75 (11.33)	6.24 (8.65)
NL	1.58 (12.74)	1.03 (13.63)	-7.43 (47.02)	-2.89 (45.3)	7.58** (3.24)
PT	0.80 (2.35)	-70.30* (40.18)	84.16* (50.17)	-29.65* (15.83)	2.85 (4.92)
SP	2.50 (2.55)	-4.22 (5.22)	0.00 (-)	2.82 (4.66)	-3.93*** (1.37)
UK	-5.44*** (1.20)	0.59 (1.42)	3.73** (1.48)	-	-

Countries	Independent variables				
	$\ln(Y_{Gt-1})$	$\ln(Y_{Gt-1}) \times$			
		$d_i^{\text{Reunification}}$	$d_i^{\text{Maastricht}}$	d_i^{Schengen}	d_i^{Euro}
EU-11	1.66 (1.72)	-2.49 (4.4)	-2.24 (1.7)	0.72 (2.87)	-0.45 (1.18)
DK	1.85 (3.61)	9.94 (6.78)	-6.79 (8.23)	-15.52*** (4.26)	-
GR	13.01*** (3.64)	-22.28*** (5.72)	28.24 (17.38)	-18.52 (19.58)	0.29 (3.16)
IT	15.42*** (5.41)	-18.79*** (5.98)	0.03*** (0.01)	12.62 (11.22)	-6.19 (8.57)
NL	0.34 (12.93)	-1.04 (13.66)	7.43 (47.06)	2.89 (45.35)	-7.63** (3.27)
PT	-6.67* (3.69)	67.09* (38.31)	-80.26* (47.88)	28.26* (15.08)	-2.76 (4.75)
SP	-2.29 (2.37)	4.12 (5.08)	0.00 (0.01)	-2.73 (4.52)	3.87*** (1.34)
UK	2.34** (1.11)	-0.54 (1.4)	-3.65** (1.44)	-	-

Dependent variable: $\ln(m_{it})$. Additional controls: $\ln(s_{it-1})$, $\ln(U_{it-1})$, $\ln(P_{it-1})$, $\ln(U_{Gt-1})$, T_{it} , c_i . Estimates of EU-11 are the averages of country specific coefficients. Numbers refer to the period 1986–2011. Standard errors are in brackets. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table 5: Influence of political events on inflows' push and pull effects of GDP per capita (results of AMG estimation)

Countries	Independent variables					Common dynamic process
	$\ln(Y_{Gt-1})$	$\ln(U_{Gt-1})$	$\ln(P_{Gt-1})$	$\ln(Y_{it-1})$	$\ln(U_{it-1})$	
EU-11	0.32 (0.87)	-0.08 (0.06)	0.13 (0.51)	-0.20 (0.61)	-0.01 (0.09)	0.62*** (0.15)
BE	-0.23 (0.97)	0.00 (0.09)	0.47** (0.21)	0.12 (0.69)	-0.15 (0.12)	0.68*** (0.12)
DK	5.20** (2.21)	0.88*** (0.34)	2.83*** (0.63)	-3.67 (2.81)	-0.37 (0.30)	1.94*** (0.33)
FR	-0.16 (0.64)	-0.12** (0.06)	-0.56** (0.26)	0.39 (0.52)	-0.21* (0.12)	0.62*** (0.09)
GR	-0.25 (1.10)	-0.11 (0.16)	-1.35* (0.71)	2.49*** (0.70)	0.34 (0.23)	0.70*** (0.23)
IR	2.38 (2.17)	-0.38 (0.30)	0.15 (0.91)	1.55 (1.75)	0.45 (0.37)	1.81*** (0.39)
IT	-3.53* (1.88)	-0.17 (0.22)	-0.67 (1.19)	1.96** (0.78)	-0.05 (0.41)	0.23 (0.30)
LU	2.30* (1.18)	0.02 (0.13)	1.78*** (0.39)	-0.95** (0.43)	0.02 (0.09)	0.56*** (0.17)
NL	2.80*** (0.83)	-0.22** (0.10)	0.55* (0.29)	-2.22*** (0.78)	0.03 (0.08)	0.77*** (0.14)
PT	-3.90** (1.83)	-0.16 (0.16)	-5.34*** (0.69)	-0.23 (1.23)	0.22 (0.24)	1.87*** (0.33)
SP	-1.59 (1.48)	0.09 (0.19)	-1.76** (0.86)	-1.47 (1.51)	-0.40 (0.26)	0.11 (0.19)
UK	0.54 (0.47)	0.23*** (0.06)	0.62*** (0.18)	-0.63 (0.51)	0.01 (0.10)	0.90*** (0.09)

Dependent variable: $\ln(m_{jt})$. Additional controls: T_{jt} , c_j . 'Common dynamic process' included as additional independent variable during AMG estimation procedure. Estimates of EU-11 are the averages of country specific coefficients. Numbers refer to the period 1986–2011. Standard errors are in brackets. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table 6: Influence of economic and demographic factors on outflows from Germany (results AMG estimation)

Countries	Independent variables			
	$d_i^{\text{Reunification}}$	$d_i^{\text{Maastricht}}$	d_i^{Schengen}	d_i^{Euro}
EU-11	-0.02 (0.04)	0.02 (0.03)	0.00 (0.04)	0.04 (0.04)
GR	-0.08 (0.08)	0.02 (0.12)	0.03 (0.06)	0.20** (0.09)
IR	0.36* (0.19)	-0.03 (0.28)	-	-0.05 (0.24)
IT	0.00 (0.10)	0.14 (0.13)	0.20*** (0.07)	0.17* (0.10)
NL	-0.04 (0.06)	-0.18** (0.08)	-0.18*** (0.06)	0.00 (0.06)
PT	-0.21* (0.11)	0.37** (0.14)	-0.09 (0.09)	0.14 (0.12)
SP	-0.14* (0.08)	0.07 (0.10)	0.15** (0.07)	0.08 (0.08)

Dependent variable: $\ln(m_{jt})$. *Additional controls:* $\ln(Y_{Gt-1})$, $\ln(U_{Gt-1})$, $\ln(P_{Gt-1})$, $\ln(Y_{jt-1})$, $\ln(U_{jt-1})$, T_{jt} , c_j . *Estimates of EU-11 are the averages of country specific coefficients. Numbers refer to the period 1986–2011. Standard errors are in brackets. * significant at 10%, ** significant at 5%, *** significant at 1%.*

Table 7: Influence of political events on outflows from Germany (results of AMG estimation)

Countries	Independent variables				
	$\ln(Y_{Gt-1})$	$\ln(Y_{Gt-1}) \times$			
		$d_i^{\text{Reunification}}$	$d_i^{\text{Maastricht}}$	d_i^{Schengen}	d_i^{Euro}
EU-11	0.57 (1.42)	3.49 (2.36)	3.09 (2.27)	-6.28*** (2.00)	0.10 (0.99)
FR	-1.25 (3.21)	1.02 (3.99)	1.61 (12.50)	-11.17 (13.59)	9.60*** (2.36)
IR	4.98 (5.16)	-14.07 (9.08)	12.46 (7.70)	-	-3.83* (1.97)
IT	8.43** (3.27)	-5.56 (4.82)	-18.92* (9.74)	-0.02 (0.02)	14.29* (7.87)
NL	-10.54* (5.82)	11.74** (5.80)	72.19*** (24.12)	-73.06*** (23.70)	-0.36 (1.70)
PT	-2.71 (2.08)	14.34 (23.22)	5.20 (28.19)	-13.88* (7.49)	-1.30 (2.64)
SP	0.05 (1.56)	5.77 (3.87)	0.02*** (0.01)	-9.76*** (3.68)	4.72*** (1.30)
UK	-0.96 (0.95)	3.44*** (1.27)	-2.43** (1.08)	-	-

Countries	Independent variables				
	$\ln(Y_{it-1})$	$\ln(Y_{it-1}) \times$			
		$d_i^{\text{Reunification}}$	$d_i^{\text{Maastricht}}$	d_i^{Schengen}	d_i^{Euro}
EU-11	0.25 (0.57)	-3.55 (2.38)	-2.95 (2.39)	6.45*** (2.08)	-0.11 (1.00)
FR	1.01 (3.09)	-0.98 (4.01)	-1.61 (12.62)	11.27 (13.72)	-9.67*** (2.38)
IR	-1.48 (3.11)	14.62 (9.38)	-12.86 (7.96)	-	3.80* (1.96)
IT	-6.97** (2.84)	5.63 (4.85)	19.17* (9.86)	-	-14.41* (7.94)
NL	11.22** (5.72)	-11.68** (5.79)	-72.12*** (24.10)	72.97*** (23.67)	0.35 (1.68)
PT	-0.16 (1.26)	-14.98 (24.36)	-5.38 (29.54)	14.59* (7.86)	1.36 (2.74)
SP	-0.06 (1.08)	-5.91 (3.97)	0 (-)	10.05*** (3.79)	-4.81*** (1.33)
UK	0.61 (0.74)	-3.43*** (1.28)	2.51** (1.11)	-	-

Dependent variable: $\ln(m_{jt})$. Additional controls: $\ln(U_{Gt-1})$, $\ln(P_{Gt-1})$, $\ln(U_{jt-1})$, T_{jt} , c_j . Estimates of EU-11 are the averages of country specific coefficients. Numbers refer to the period 1986–2011. Standard errors are in brackets. * significant at 10%, ** significant at 5%, *** significant at 1%.

Table 8: Influence of political events on outflows' push and pull effects of GDP per capita (results of AMG estimation)