THE RESEARCH INSTITUTE OF INDUSTRIAL ECONOMICS

Working Paper No. 594, 2003

Who Wants Political Integration?
Evidence from the Swedish EU-Membership Referendum

by Jonas Vlachos

IUI, The Research Institute of Industrial Economics
P.O. Box 5501
SE-114 85 Stockholm
Sweden

WHO WANTS POLITICAL INTEGRATION?
EVIDENCE FROM THE SWEDISH EU-MEMBERSHIP REFERENDUM

Forthcoming in *Journal of Public Economics*

May 4, 2003

Jonas Vlachos♣

Abstract

The regional voting pattern of the Swedish EU-membership referendum is analyzed to determine voters' preferences over two fiscal regimes: an autonomous Sweden, or Sweden as part of the EU. A major difference between these regimes is that autonomy gives greater national discretion to handle risk-sharing and redistribution between regions. I find that inhabitants of rich and stable regions, with high levels of schooling, small receipts of central government transfers, and trade relations displaying comparative advantages towards the EU were relatively positive to membership. A plausible interpretation is thus that voters in safe and rich regions voted in favor of dismantling the Swedish transfer system.

JEL Classification: F15, H11, H70
Keywords: Political integration; Secession; Regional risk-sharing; Regional redistribution.

♣ Research Institute of Industrial Economics, P.O. Box 5501, SE-114 85 Stockholm, Sweden. Phone: +46-8-6654537, Fax: +46-8-6654599, Email: Jonas.Vlachos@iui.se.

1. Introduction

In 1994, the Swedish voters were given the opportunity to express their opinion on membership in the European Union in a referendum. While a majority of voters favored EU-membership, the regional variation in the voting pattern was large. In this paper, I exploit this variation to gain insights of why people favor European political integration. The results show that individuals in economically risky regions were significantly more negative to EU-membership. In contrast, inhabitants of high-income regions, with high levels of schooling and small receipts of central government transfers, were more positive to integration, as were regions displaying comparative advantages in their trade relations with the EU.

An important difference between an autonomous Sweden and EU-membership is that the EU is a fiscal regime imposing strict restrictions on the national discretion to handle risk-sharing and redistribution between regions. At the same time, public redistribution and risk-sharing between membership countries are limited. Joining the EU hence implies leaving a system of regional transfers. In contrast, much of the theoretical literature on regional integration and disintegration builds on the premise that integration implies the *creation* of regional transfer schemes.[1] A plausible interpretation of the results in this paper is therefore that the inhabitants of safe and rich regions voted in favor of dismantling the Swedish transfer system, rather than in favor of European integration as such.

There is a large empirical literature on regional integration (e.g. Hess and van Wincoop, 2000) but there are few empirical analyses of the preferences between different fiscal regimes. Panizza (1999) shows that country size, per capita income, ethnic fractionalization, and democracy are negatively related to the degree of fiscal centralism, defined as the ratio of central to total government expenditure. Since this definition concerns the distribution of fiscal power across levels of governance, rather than the set of policy options available, these results cannot be directly related to the present study.

[1] For surveys of the theoretical literature, see Alesina et al. (1995) and Bolton et al. (1996).

Alesina et al. (2000) find that openness to trade mediates the economic benefits of country size, and that open trade regimes tend to generate secessions. In contrast, I find the composition of trade, but not trade volumes *per se*, to be a factor determining preferences. Unlike previous work, the present paper directly studies voter preferences on the decision to integrate. Exploiting regional, rather than country-level data also circumvents some of the well-known data problems associated with cross-country studies.

2. Preferences for political integration

The central hypotheses in this paper regarding the effects of regional risk and income levels on preferences for different fiscal regimes are developed in Section 2.1. There are, however, additional determinants of these preferences that must be controlled for. Sections 2.2 and 2.3 discuss other potentially influential regional and individual characteristics, respectively.

2.1. Income and risk

From a local perspective, the choice of whether to enter the EU is really a choice between two types of "federal" regimes. One is an autonomous Sweden with the Swedish central government as the federal power; the other is Sweden as a part of the EU with the European Commission as the federal power. Entering the EU involves renouncing national discretion along several dimensions. The Maastricht treaty entails a complete loss of monetary autonomy and caps on government borrowing during temporary shocks. The EU is also a customs union, leaving Sweden with no discretionary trade policy towards third countries. Finally, the inner market builds on strict rules regarding industrial subsidies, competition policy, regional aid and public procurement, leaving national governments with little discretion in times of industrial crises.[2] Ex post, there is little doubt that the EU has indeed limited the discretion of national governments. National state aid to industries in the Euro-12 area declined by 30 percent between 1994

[2] The EU-rules regulating state aid are summarized in EU (1999).

and 1999 (EU, 2000). In the same period, Swedish employment aid to industries declined by almost 50 percent and regional aid by more than 20 percent (NUTEK, 2000).[3]

Based on this brief description, I argue that the discretionary power to handle regional economic shocks through taxes, transfers and industrial policies was greater within an autonomous Sweden. In principle, EU-membership could improve regional risk sharing by fostering market-based mechanisms (Asdrubali et al. 1996, and Mélitz and Zumer 1999). However, Sorensen and Yosha (1998) have shown income insurance through market mechanisms to be limited within Europe;[4] rather, governments perform the bulk of income and consumption smoothing. Hence, the caps on government deficits imposed by EU-regulations are likely to impose binding constraints on national consumption and income smoothing. Accordingly, both insurance through transfers to regions and industries, and stabilization through counter-cyclical government spending are limited by EU-membership.[5] Another feature of the EU rules on industrial and regional policies is that they limit the national discretion regarding transfers, even when these are aimed at regions and industries that are permanently backward. Apart from the support to agriculture through the Common Agricultural Policy, CAP, EU support to Swedish regions and industries is limited.[6]

In conclusion, the choice to enter the EU is a choice between two fiscal policy bundles: High insurance/stabilization and high redistribution if Sweden stays outside the EU; low insurance/stabilization and low redistribution if it becomes a member. The central prediction in this paper thus naturally follows: those standing to gain the most from

[3] As a share of total value added in the private sector, state aid has been reduced by about 27 percent from 1995 to 1999 according to the NUTEK (2000) study. Calculating the full extent of different subsidies is a complicated task and the results largely depend on which definitions have been used. In Sweden, one estimate of the value of industrial support in 1994 was around 50 billion Swedish kronor (about 5 billion Euro). In the same year, corporate income taxation aggregated to 20 billion kronor (2 billion Euro) (Barkman and Fölster 1995). To the best of my knowledge, no estimates employing the same methodology have been produced at a later date.

[4] It can also be noted that the access to international capital markets does not formally differ between the two types of fiscal regimes considered. Capital movements across Swedish borders were completely liberalized already in 1991.

[5] It should also be noted that local governments play a limited role in stabilizing local income in Sweden through counter-cyclical spending, since they are prohibited to run deficits by law.

[6] The total regional support to Sweden for the period 2000-2006 amounts to around 12 billion Swedish kronor or around 1.3 billion Euro (Näringsdepartementet, 2001)

joining the EU are the inhabitants of relatively rich and stable regions, since they tend to benefit from the caps imposed on the Swedish transfer schemes. A second implication is that regions receiving large transfers from the central government should be less inclined to join the EU.

2.2. Other regional determinants

There is a large set of other regional characteristics that could have influenced voter preferences, which must be considered in the analysis. Population size is controlled for, to account for the possibility that inhabitants in large cities voted in a systematically different way than those in smaller cities. Most studies analyzing the outcome of the referendum have found that inhabitants in the north of Sweden were more negative to membership (e.g. Gilljam, 1996). For this reason, a north-south trend is included to control for this dimension of regional heterogeneity. Furthermore, a variable accounting for the *post* membership growth of industries is also included. The logic is that some of the industry growth experience after Sweden actually joined the EU can be ascribed to the membership, and that this was predictable to some extent. Hence, inhabitants of regions with a large share of rapidly growing industries can be expected to have a relatively positive attitude to the EU-membership.

It would also be satisfactory to explicitly account for the potential regional benefits of joining the EU. In particular, it is reasonable to expect the costs of trading with the EU to be lower for members than for non-members and thus, the regional trading pattern can be expected to affect the election outcome. Regions with large trading volumes with the EU would have more to gain from political integration than regions with low trading volumes. In addition, regions displaying comparative advantages (a large export/import-ratio) towards the EU should also tend to be more positive to membership. These and some other hypotheses will be addressed in Section 4.2.

2.3. Other individual determinants

Different individuals are likely to have different valuations of EU-membership. For this reason, individual characteristics (aggregated to the regional level) are taken into account.

Since the EU-membership possibly benefits the well-educated more than the less educated, I control for the average years of schooling. Investments in general human capital also make individuals less sensitive to industry-specific shocks, thereby making the loss of national discretion less important for this group. Underlying political preferences are likely to be correlated with the attitudes to EU-membership and are hence also controlled for. The voter turnout ratio is also included since it can capture systematic differences between opponents and proponents to membership in their propensity to vote. Since the Common Agricultural Policy (CAP) provides generous benefits to farmers, a positive relation between the support for EU-membership and the share of agricultural workers in a region can be expected.

3. Empirical specification, data and measurement issues

In order to empirically assess the determinants behind the attitudes to political integration, the regional variation in the support for EU-membership in the Swedish 1994 referendum is used. The discussion in the previous section gives the following baseline relation to be estimated

$$(3.1) \quad YES_c = \beta_0 + \beta_1 RISK_c + \beta_2 INCOME_c + \gamma Z_c + \varepsilon_c.$$

YES_c is the percentage of valid votes in favor of membership, $RISK_c$ an indicator of regional labor market risk, $INCOME_c$ average income, Z_c a vector of control variables, ε_c an error term and subscript c the regional indicator.

For a region to be of practical importance to its inhabitants, leaving it must be costly. For this reason, the level of analysis is Sweden's 109 local labor markets, LLM:s. An LLM is an analytical region created by *Statistics Sweden*, based upon the observed commuting patterns.[7] Basically, this regional division means that moving costs must be incurred if an individual wants to find a job outside his/her LLM. Since LLM:s are not administrative

[7] See *Statistics Sweden* (1998) for a closer description of the LLM subdivisions.

regions, the data has been aggregated from the municipal level.[8] Except when otherwise stated, the data refers to the election year, i.e. 1994 (see Appendix A for a closer description of the data).

3.1. Measuring labor market risk

To measure regional risk, I follow the approach used by Conroy (1975) and Diamond and Simon (1990) and calculate an indicator of LLM-risk. Based on the idea that LLM:s with a large representation of volatile industries are risky, these authors derive what can best be described as an augmented Herfindahl index. Every LLM is viewed as a portfolio of industries, each subject to random fluctuations. The total degree of LLM-risk is the weighted average of the variances and covariances of these fluctuations. The total variance in LLM c equals

$$(3.2) \qquad RISK_c = \sum_s^n s_{sc}^2 \sigma_{ss}^2 + \sum_s^n \sum_u^n s_{sc} s_{uc} \sigma_{su} \quad , s \neq u, \mathrm{c} = 1,...,109\,,$$

where s_{sc} is the employment share of industry s in labor market c, σ_{ss} is the variance of employment in industry s around a trend, and σ_{su} the covariance of employment between industries s and u. The variance element, σ_{ss}, is the variance in the rate of national employment growth in industry s, while the covariance elements, σ_{su}, equal the covariance between growth rates. The employment growth rate of each industry was de-trended by taking the first differences of employment at the national level. The logarithms of the first differences were then regressed on a time trend. These residuals were used to construct the variance/covariance matrix. This procedure is used to capture the degree of unexpected variance around the trends.[9] In order to calculate the variance/covariance matrix, annual industry employment data at the national level for 43 industries for the years 1985-1997 is used.[10]

[8] There were 288 municipalities in 1994. Note that an LLM is never smaller than a municipality, hence aggregation is unproblematic.

[9] As will be shown in Section 4.2, the results are not sensitive to the de-trending method. Using first differences without a time trend yields consistent results.

[10] There might be alternative indicators of LLM-risk, for example unemployment fluctuations. These are not used for two main reasons. First, the unemployment data at my disposal only goes back to 1992.

3.2. Measurement of other variables

Defining and measuring most control variables is unproblematic. *SCHOOL* is the average years of schooling; *POP* the population size; *AGRI* the share of employment in agriculture; *AGE* the average age; *GRANT* the per capita transfers from the central government; *WELFARE* the per capita welfare spending; *UEMP* the unemployment rate; *POPDENS* the population density; and *PUBLIC* the share of public employment. Some variables merit further description, however.

The percentage share of votes in the 1991 municipal election for the Social Democratic Party, *SAP*, and the Conservative Party, *MODERAT*, are used as indicators of the underlying political preferences.[11] Using voting data from 1991, I rule out the possibility that the voters' attitudes to the EU affected the voting pattern in the municipal election, rather than the other way around. The north-south dimension is accounted for by a variable labeled *TREND*, numbering the LLM:s from south to north. This variable is then squared to account for the larger size of LLM:s in the north.[12] In most specifications, the *TURNOUT*-ratio is instrumented for using the turnout ratios of the 1991 and 1994 parliamentary elections,[13] since this ratio is likely to be endogenously determined by, for example, the levels of risk and income. *AVCH9497* is a variable taking a high value if an LLM had a large share of industries experiencing high growth after the membership.

The discussion in Section 2.2 suggests that regional trading patterns can be important determinants of voter preferences. Unfortunately, regional trade data is not available and instead, industry trade volumes and export/import-ratios between Sweden and the EU-

---

Second, if people move in response to local unemployment shocks, the unemployment statistics will misrepresent the true labor market risk. Another way would be to investigate income fluctuations, but this indicator would be severely biased since redistribution has smoothed actual incomes. A third possibility would be to calculate local output gaps, but data for such a procedure is not available at this disaggregated level.

[11] An attempt is also made to use voting shares of other parties, but these results are not significant.

[12] Squaring is not essential for the results, but somewhat improves the fit of the regression.

[13] The correlations between the turnout ratio of the referendum and the 1991 and 1994 elections turnout ratios are 0.65 and 0.61, respectively.

area are weighted by the local industry composition. These variables are labeled $TRADE_{EU}$ and $EXPIMP_{EU}$.

4. Results

4.1. The baseline specification

The results from an OLS-estimate of (3.1) are presented in Table 1, column (1).[14] The fit of the regression is very good, with an adjusted R^2 of 0.86. This high fit is due to the strong geographical component in the voting pattern: a univariate regression between *YES* and *TREND* yields an adjusted R^2 of 0.51. As can be seen, all significant variables have the expected sign. Higher levels of income and schooling, a larger share of workers in the agricultural sector, and a larger share of social democratic or conservative supporters all seem to have resulted in a more positive attitude to the EU. *RISK* is negative, thereby indicating that a higher LLM-risk decreased the support for the membership, while $RISK^2$ is positive, thereby indicating that this effect decreased with higher levels of risk. In fact, the point estimates even suggest that the relation between *RISK* and *YES* could be reversed at high levels of risk.[15] A logarithmic specification, on the other hand, produces a highly significant and negative point estimate (Table 1, column 7). Similarly, when using a slightly different risk indicator, a linear specification seems to better fit the data (see Section 4.2). *TREND* is negative, showing that voters in the north of Sweden were relatively negative to membership. *TURNOUT* is also negative, suggesting that the larger the share of people who used their right to vote, the more negative attitudes to the EU were displayed. *POP* and *AVCH9497* are not statistically significant.

[14] The term $RISK^2$ is entered since the fit of the regressions is found to be better using this specification. Actually, there is no reason to expect the relationship to be linear. When excluding $RISK^2$, the coefficient on *RISK* is insignificant at conventional levels.

[15] *RISK* ranges from around 14 to 72. The coefficients on *RISK* and $RISK^2$ indicate that the point at which the quadratic function turns from negative to positive is 46.2 (specification 1). This would mean that among the LLM:s with high levels of risk (around the 80^{th}-90^{th} percentiles), increased risk is associated with a more positive attitude to membership. Although not implausible, this result is highly dependent on the precision with which the coefficient of $RISK^2$ is estimated. By moving towards the lower bound of the 95-percent confidence interval of the point estimate, the turning point shifts to 3608. Moving to the upper bound results in a turning point at 20. Thus, even minor errors in the estimate easily push the turning point far outside the relevant interval.

Due to endogeneity concerns, the turnout ratios from the 1991 and 1994 parliamentary elections are used as instruments for *TURNOUT* in column (2). The point estimate of *TURNOUT* drops sharply and loses its statistical significance, while the point estimate of *RISK* is almost doubled. There is also an increase in the size of the point estimates and the statistical significance of the political variables *MODERAT* and *SAP*. In column (3), *POP* and *AVCH9497* are omitted from the specification, but the results remain stable.

[Table 1 about here]

Although a normality test indicates that outliers do not drive the results, I experiment by excluding labor markets with more than 50 percent yes-votes. As seen in column (4), this exclusion strengthens the results for *RISK*, while *AGRI*, *MODERAT*, and *SAP* lose some of their significance. Since OLS-estimates can be sensitive to outliers, column (5) reports the results from a least median regression that is less sensitive to outliers than OLS, but also less efficient. The estimates are similar to the previous ones.[16] Another possible problem with the model specification is that the dependent variable is bounded between one hundred and zero. This is likely to be of minor importance, however, since *YES* ranges between 17.7 and 65.3. The standard procedure of dealing with bounded dependent variables converts it to the form Log(*YES*/100-*YES*), but does not affect the results to any substantial degree. In columns (6) and (7) of Table 2, Log(*YES*/100-*YES*) is used as the dependent variable, and in (7), all regressors are entered in logarithms. The results for the central variables are stable to these changes.

Establishing significance is a first step; the next question concerns the size of the effects. The coefficient of *RISK* is around -0.27 and that of $RISK^2$ 0.0034 when using OLS, and around –0.42 and 0.005 respectively when using 2SLS. Since the standard deviation of *RISK* is 13.3, an increase in *RISK* by one standard deviation implies a decrease in *YES* by

---

[16] Upon a close inspection of the explanatory variables, it can be found that four labor markets display such a large labor market risk that they can be considered as outliers in the box-plot sense of the word. In an unreported set of regressions, these labor markets are excluded from the sample, which results in an increase in the point estimates of *RISK* (-0.37 and -0.64 in the OLS- and 2SLS specifications, respectively). Otherwise the results are stable, however.

3 percentage points when considering the OLS-estimates and 4.6 percentage points when considering the 2SLS-estimates. Since the mean of *YES* across LLM:s is 41.8, the effect is substantial. When increasing *SCHOOL* and *INCOME* by one standard deviation, *YES* increases by around 3.5 and 3 percentage points, respectively.

4.2. Further tests and robustness of the results

In Table 2, some further hypotheses are tested. In column (1), variables proxying for the size and composition of the regional trading patterns with the EU, $TRADE_{EU}$ and $EXPIMP_{EU}$, are included. $EXPIMP_{EU}$ has a positive and significant sign, which indicates that regions with a large representation of industries with a high export-import ratio did tend to be relatively positive to EU-membership. In column (2), the regional per capita level of central government transfers, *GRANT*, is shown to have a negative and highly significant point estimate. This provides support for another of the hypotheses presented in Section 2.1 – inhabitants of regions receiving large transfers were relatively negative to enter the EU.

[Table 2 about here]

In column (3), the *RISK*-indicator is calculated using the first differences of industry growth rates, but without regressing these on a time trend. The basic relationship is robust to this change. A regression without $RISK^2$ (not shown) indicates, however, that a linear specification fits the data better in this case. The coefficient on *RISK* then takes a value of -0.15 (p-value 0.000). In columns (4)-(9), some further controls are included to verify that the results are not driven by omitted variables. Column (4) contains per capita welfare spending[17] and (5) the average age of the population. In (6), the unemployment rate is added, in (7) the population density, and in (8) the share of public employment. In (9), all new control variables are entered simultaneously. The point estimates of *RISK* and $RISK^2$ are stable to these inclusions, but the significance level of the coefficient on *INCOME* depends somewhat on the set of control variables. Given the high correlation

[17] Swedish welfare assistance is the public income support of "last resort". In order to qualify, basically no wealth or disposable assets can be retained.

between income levels, educational attainment, government grants and welfare spending, it is not surprising that the individual effect of these variables is hard to pinpoint.

As a further robustness test, I run a number of regressions where the employment shares of individual industries are entered in different combinations.[18] The coefficient on *RISK* varies between -0.24 (p-value 0.06) and -0.47 (0.00). $RISK^2$ takes values between 0.003 (0.03) and 0.006 (0.00). *INCOME* is less robust (although significant in a large majority of cases) and varies between 0.03 (0.70) and 0.20 (0.00). *SCHOOL* ranges between 6.48 (0.01) and 12.81 (0.00). Not surprisingly, the proxy for trading patterns, $EXPIMP_{EU}$, is sensitive to control variables accounting for the regional industry structure. It takes on values between 0.37 (0.79) and 3.19 (0.00). *GRANT* ranges between -0.30 (0.13) and -0.78 (0.00), but is quite stable around -0.70 (p-values <0.01).

4.3. The spatial dimension

When using regional data, some special econometric problems might arise. Basically, attitudes to the EU can "spill over" between regions, i.e. we could have a spatial autocorrelation problem (see Appendix B and Anselin, 1988). Since unobservable regional characteristics cannot be controlled for in a cross-sectional setting, it might be particularly important to account for spatial autocorrelation in such a study. Spatial spillovers might result in a systematic correlation between the dependent variable across regions (*spatial lag* structure), and OLS would yield biased estimates. Alternatively, the error terms can be systematically correlated across regions, but it is not the voting pattern *per se* that lies behind the correlation (*spatial error* structure). Then, the OLS-estimates will be inconsistent. To check the robustness of the results for these types of spillovers, a regional weight matrix of the dimension 109×109 is created. The elements in this matrix take the value of one if two regions are neighbors, and zero otherwise. This weight matrix is then used to test the baseline specification for a spatial structure of the data. Although LM-tests for spatial lags and errors indicate that spatial autocorrelation is indeed present,

[18] First, the employment share of each industry is entered, one at a time. Then, a number of combinations of five and seven industries are used. Apart from industry shares of employment, the same set of control variables as in Table 2, column (2) is used (results available upon request).

the results for the central variables essentially remain unchanged when explicitly accounting for the spatial dimension (results available upon request).

5. Conclusions

The determinants of the regional voting pattern from the Swedish 1994 EU-membership referendum are studied, with particular attention given to risk-sharing and redistribution. An increased degree of local labor market risk reduced the support for membership. Regions with high average income- and educational levels, small receipts of central government transfers, and trade patterns displaying comparative advantages towards the EU were relatively positive to membership.

At a superficial level, these results appear to contradict both Persson and Tabellini (1996) and Bolton and Roland (1997). The former show that regions subject to large idiosyncratic shocks have stronger incentives to join a union than stable regions, while the latter present a model where poor regions are more prone to integrate since they stand more to gain from inter-regional transfer schemes. Based on the strict regulations regarding discretionary policies within the EU, a more reasonable interpretation is available. From the individuals' perspective, joining the EU could be described as leaving a system of regional income transfers and risk-sharing, whereas unification in the above-mentioned models implies the *creation* of inter-regional transfer schemes. The inhabitants of stable and rich regions receiving little central government assistance could, in other words, be said to have voted for the dismantling of the Swedish transfer system, rather than for integration with the EU *per se*. This interpretation highlights the importance of defining what "regions" and "unions" actually are, especially in models based on individual political choice.

Acknowledgements

I thank Malin Adolfson, Tore Ellingsen, Lars Frisell, Patrik Gustavsson, Fredrik Heyman, three referees and seminar participants at the Stockholm School of Economics for very helpful comments and suggestions. Financial support from HSFR and from the Tore Browald and Jan Wallander-foundation is gratefully acknowledged.

References

Alesina, A., R. Perotti, E. Spolaore (1995) ”Together or Separately. Issues on the Costs and Benefits of Political and Fiscal Unions”, *European Economic Review*, 39, 751-758.

Alesina, A. E. Spolaore, R. Wacziarg (2000) ”Economic Integration and Political Disintegration”, *American Economic Review*, 90:3, 1276-1296.

Anselin, L. (1988) *Spatial Econometrics: Methods and Models*, Kluwer, Dordrecht.

Asdrubali, P., B. Sorensen, O. Yosha (1996) “Channels of Interstate Risk Sharing: United States 1963-1990”, *Quarterly Journal of Economics*, 111, 1081-1110.

Barkman, C. and S. Fölster (1995), “Företagsstödet – vad kostar det egentligen?”, Report from ESO DsFi 1995:14.

Bolton, P. and G. Roland (1997) “The Breakup of Nations: A Political Economy Analysis”, *Quarterly Journal of Economics*, 112:4, 1057-1090.

Bolton, P., G. Roland, and E. Spolaore (1996) “Economic Theories of the Break-Up and Integration of Nations”, *European Economic Review*, 40, 697-705.

Conroy, M. (1975) “The Concept and Measurement of Regional Industrial Diversification”, *Southern Economic Journal*, 41, 492-505.

Diamond and Simon (1990) “Industrial Specialization and the Returns to Labor”, *Journal of Labor Economics*, 8:2, 175-201.

EU (1999) “Vademecum – Community Rules on State Aid”. To be found at http://europa.eu.int/comm/competition/state_aid/others.

EU (2000) “Eight Survey on State Aid in the EU”, COM (205). To be found at http://europa.eu.int/comm/competition/state_aid/others.

Gilljam, M (1996) “Det kluvna Sverige? (The Divided Sweden?)” in Gilljam, M. and S. Holmberg (eds.) *Ett knappt ja till EU: Väljarna och folkomröstningen 1994*, Nordstedts, Stockholm.

Hess, G. and E. van Wincoop (eds.) (2000) *Intranational Economics*, Cambridge University Press: Cambridge

Mélitz, J. and F. Zumer (1999) "Interregional and International Risk-Sharing and Lessons for EMU", *Carnegie-Rochester Conference Series on Public Policy*, 51, 149-188.

NUTEK (2000), "Swedish Industry and Industrial Policy 2000", NUTEK Report Info Number 043-2000. To be found at http://www.itps.nu/sv-nliv.html.

Näringsdepartementet (2001), "Versamhetsplan 2001", Regeringskansliet, Stockholm.

Panizza, U. (1999) "On the Determinants of Fiscal Centralization: Theory and Evidence", *Journal of Public Economics*, 74, 97-139.

Persson, T. and G. Tabellini (1996) "Federal Fiscal Constitutions: Risk Sharing and Redistribution", *Journal of Political Economy*, 104:5, 979-1009.

Sorensen, B. and O. Yosha (1998) "International Risk Sharing and European Monetary Unification", *Journal of International Economics,* 45, 211-238.

Statistics Sweden (1998) "Regionala koder enligt indelningen den 1 januari 1998 (Numerical codes by region for various Swedish subdivisions)", MIS 1998:2.

Appendix A. Data

All data is from *Statistics Sweden*, except unemployment data which is from *AMS*, the central body among Sweden's labor market authorities. Except where indicated, data refers to the year 1994. Data on Sweden's 288 municipalities has been aggregated to the local labor market level (109 observations). Data on the industry level is divided into 43 industries according to *Statistics Sweden*'s "limited level"-classification (which follows the NACE-classification).

YES: The share of (valid) votes in favor of EU-membership (×100). Mean: 41.79. Std: 10.49. Skewness: -0.31.
AGE: Average age in years. Mean: 40.28. Std: 1.63. Skewness: 0.19.
AGRI: Share of employment in agriculture. Mean: 0.025. Std: 0.015. Skewness: 1.17.
AVCH9497: Weighted average industry growth rate between 1994 and 1997. Defined as $\Sigma_{s=1}^{n} s_{sc}\{(L_{s,1995} + L_{s,1996} + L_{s,1997})/3 - L_{s,1994}) / \mathrm{L}_{s,1994}\}$, where $L_{s,t}$ is the national employment in industry s at time t and s_{sc} is the share of employment in industry s and LLM c in 1994. Suppose an LLM only consists of industries A and B and that these are of equal size in 1994. If industry A grows (at the national level) by 10 percent between 1994 and 1997 and industry B declines at the same rate, then AVCH9497 will be zero. Mean: -0.0009. Std: 0.0039. Skewness: 0.669.
EXPIMP$_{\mathbf{EU}}$: Weighted export-import ratio with the EU. Defined as $\Sigma_{s=1}^{n} s_{sc}\{\mathrm{Export}_s / \mathrm{Import}_s\}$ where Export_s (Import_s) are the national exports (imports) to (from) the EU-member states (in 1994) in thousands of Swedish kronor and s_{sc} is the share of employment in industry s and LLM c in 1994. Mean: 1.28. Std: 0.37. Skewness: 2.40.
GRANT: Per capita grants from central to the municipal government in thousands of Swedish kronor. Mean: 7.34. Std: 3.73. Skewness: 0.90.
INCOME: Income per family at work in thousands of Swedish kronor. Mean: 156.03. Std: 8.83. Skewness: 0.24.
MODERAT: Percentage of votes cast in favor of the Conservative Party in the 1991 municipal election. Mean: 16.18. Std: 5.73. Skewness: 0.34.
POP: Number of inhabitants. Mean: 80884.2. Std: 199266.2. Skewness: 6.49.
POPDENS: Number of inhabitants per square kilometer. Mean: 30.09. Std: 36.29. Skewness: 0.19.
PUBLIC: Share of public employment. Mean: 35.27. Std: 6.70. Skewness: 0.06.
RISK: Indicator of labor market risk. Defined as: $\Sigma_{s=1}^{n} s_{sc}^{2}\,\sigma_{ss}^{2} + \Sigma_{s=1}^{n} \Sigma_{u=1}^{n} s_{sc}s_{uc}\sigma_{\sigma\upsilon}$, $s \neq u$, where s_{sc} and s_{uc} are the shares of employment in industries s and u in LLM c in 1994. σ_{ss} is the variance of employment in industry s around a trend, and σ_{su} the covariance of employment between industries s and u. The variance element, σ_{ss}, is the variance in the rate of national employment growth in industry s, while the covariance elements, σ_{su}, equal the covariance between growth rates. The employment growth rate of each industry was de-trended by taking the first differences of annual employment at the national level between 1985 and 1997. The logarithms of the first differences were then regressed on a time trend. The residuals from these regressions were used to construct the variance/covariance matrix. Mean: 31.81. Std: 13.36. Skewness: 1.12
SAP: Percentage of votes cast in favor of the Social Democratic Party in the 1991 municipal election. Mean: 41.53. Std: 7.87. Skewness: 0.29.
SCHOOL: Average years of schooling. Mean: 10.65. Std: 0.32. Skewness: 0.88
TRADE$_{\mathbf{EU}}$: Weighted trade with the EU. Defined as $\Sigma_{s=1}^{n} s_{sc}\{\mathrm{Export}_s + \mathrm{Import}_s\}$ where Export_s (Import_s) are the national exports (imports) to (from) the EU-member states (in 1994) in thousands of Swedish kronor and s_{sc} the share of employment in industry s and LLM c in 1994. Mean: 1.01×10^7. Std: 7079234. Skewness: 1.96.
TREND: Each LLM is numbered from south to north. TREND is defined as the square of this numbering. Mean: 4015. Std: 3589. Skewness: 0.63.
TURNOUT: The percentage of eligible voters who actually cast their votes. Mean: 82.59. Std: 2.07. Skewness: -0.98.
UEMP: Total unemployment rate. Mean: 13.07. Std: 2.80. Skewness: 0.25.
WELFARE: Per capita welfare spending in thousands of Swedish kronor. Swedish welfare spending is the cash support of last resort and covers the basic living expenses. Mean: 0.83. Std: 0.33. Skewness: 0.30.

[Table A1 here]

Appendix B. Spatial econometrics

In the *spatial lag* case, the flowing relation is estimated:

(A.1) $$y_c = \gamma \Omega\, y_c + \beta x_c + \varepsilon_c\,,$$

where Ω is a regional weight matrix of dimension 109 × 109 and γ is the coefficient of Ωy_c in the regression. The elements in the weight matrix take the value of one if two regions are neighbors and zero otherwise.

In the *spatial error* case, the following relation is estimated:

(A.2) $$y_c = \beta x_c + \lambda\, \Omega \varepsilon_c + \eta_c\,,$$

where Ω is the regional weight matrix. The error terms from OLS-estimates, ε_c, are in this case systematically correlated across regions. Since the autoregressive coefficient λ is not known, a maximum likelihood estimation must be carried out.

Table A1: Correlations between main variables of interest:

	YES	*RISK*	*TREND*	*SCHOOL*	*INCOME*	*POP*	*AVCH-9497*	*TURN-OUT*	*MOD-ERAT*	*SAP*	*AGRI*	*GRANT*	*EXP-IMP*$_{EU}$
RISK	-0.46												
	(0.00)												
TREND	-0.72	0.67											
	(0.00)	(0.00)											
SCHOOL	0.46	0.04	0.02										
	(0.00)	(0.71)	(0.80)										
INCOME	0.63	-0.13	-0.34	0.52									
	(0.00)	(0.17)	(0.00)	(0.00)									
POP	0.68	-0.26	-0.35	0.80	0.61								
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)								
AVCH-	0.08	-0.23	-0.25	-0.24	0.14	0.17							
9497	(0.41)	(0.02)	(0.01)	(0.01)	(0.14)	(0.08)							
TURN-	0.25	-0.18	-0.34	0.35	0.50	0.38	0.04						
OUT	(0.01)	(0.07)	(0.00)	(0.00)	(0.00)	(0.00)	(0.65)						
MOD-	0.68	-0.39	-0.59	0.41	0.46	0.60	0.16	0.29					
ERAT	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.10)	(0.00)					
SAP	-0.38	0.29	0.59	-0.07	-0.23	-0.22	-0.22	-0.31	-0.56				
	(0.00)	(0.00)	(0.00)	(0.47)	(0.02)	(0.02)	(0.02)	(0.00)	(0.00)				
AGRI	0.16	-0.04	-0.25	-0.09	-0.17	-0.02	-0.15	-0.01	0.14	-0.39			
	(0.08)	(0.65)	(0.01)	(0.35)	(0.07)	(0.84)	(0.11)	(0.92)	(0.14)	(0.00)			
GRANT	-0.82	0.56	0.69	-0.41	-0.73	-0.33	-0.14	-0.45	-0.60	0.34	0.05		
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.13)	(0.00)	(0.00)	(0.00)	(0.57)		
EXP-	-0.12	0.17	0.14	-0.24	-0.05	-0.15	-0.15	-0.18	-0.25	0.14	-0.07	0.14	
IMP$_{EU}$	(0.20)	(0.07)	(0.15)	(0.01)	(0.58)	(0.12)	(0.12)	(0.05)	(0.01)	(0.13)	(0.46)	(0.14)	
TRADE$_{EU}$	0.32	-0.38	-0.47	-0.22	0.28	-0.10	0.34	0.03	0.03	-0.09	-0.12	-0.42	0.01
	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.29)	(0.00)	(0.73)	(0.72)	(0.33)	(0.22)	(0.00)	(0.88)

P-values in parenthesis. *YES* is the share of votes in favor of EU-membership. *RISK* is the indicator of labor market risk. *TREND* is the (squared) south-north numbering of the LLM:s. *SCHOOL* is the average years of schooling. *INCOME* is the average income per working family. *POP* is the population size. *AVCH9497* is the weighted average of industry growth between 1994-97. *TURNOUT* is the voter turnout ratio. *MODERAT* is the share of votes cast for the conservative party in the 1991 municipal election. *SAP* is the share of votes cast for the Social Democratic party in the 1991 municipal election. *AGRI* is the share of agricultural workers. *GRANT* is the per capita transfers from central to local governments. *EXPIMP*$_{EU}$ is a proxy for the regional export-import ratio with the EU. *TRADE*$_{EU}$ is a proxy for the regional trade volume with the EU. There are 109 observations.

Table 1. Determinants of the support for membership in the EU

	(1) *OLS*	*(2)* *2SLS*	*(3)* *2SLS*	*(4)* *2SLS*	*(5)* *LMR*	*(6)* *2SLS*	*(7)* *2SLS*
RISK	-0.277	-0.417	-0.414	-0.473	-0.451	-0.019	-0.309
	(0.044)	(0.014)	(0.010)	(0.009)	(0.057)	(0.005)	(0.001)
RISK^2	0.003	0.005	0.005	0.006	0.006	0.0002	
	(0.061)	(0.025)	(0.021)	(0.015)	(0.040)	(0.014)	
INCOME	0.416	0.329	0.326	0.303	0.236	0.014	1.912
	(0.000)	(0.000)	(0.000)	(0.000)	(0.032)	(0.000)	(0.038)
SCHOOL	12.843	10.269	10.649	8.793	10.749	0.451	2.588
	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.013)
TURNOUT	-1.314	-0.204	-0.203	-0.984	0.478	-0.005	4.572
	(0.000)	(0.755)	(0.751)	(0.984)	(0.506)	(0.860)	(0.211)
POP	-0.209	0.066					
	(0.793)	(0.760)					
AVCH9497	-41.438	-36.808					
	(0.726)	(0.760)					
AGRI	89.028	96.360	98.868	52.895	84.77	4.317	0.115
	(0.002)	(0.003)	(0.002)	(0.158)	(0.094)	(0.001)	(0.009)
MODERAT	0.158	0.231	0.230	0.115	0.222	0.009	0.260
	(0.111)	(0.027)	(0.023)	(0.328)	(0.212)	(0.048)	(0.021)
SAP	0.192	0.236	0.242	0.168	0.329	0.010	0.317
	(0.014)	(0.006)	(0.004)	(0.063)	(0.006)	(0.003)	(0.130)
TREND	-0.002	-0.002	-0.002	-0.002	-0.002	-0.0001	-0.151
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CONST	-48.743	-103.99	-107.33	-93.831	-153.30	-6-974	-36.148
	(0.054)	(0.017)	(0.011)	(0.054)	(0.001)	(0.000)	(0.006)
ADJ. R^2	0.86	0.82	0.83	0.70	0.59	0.81	0.61
# OBS	109	109	109	84	109	109	109

White's standard errors have been used. P-values in parenthesis. Instruments for *TURNOUT* in 2SLS-estimates are the turnout ratios from the 1991 and the 1994 parliamentary elections. In columns (1)-(5), the dependent variable is *YES*. In column (4), labor markets with more than 50% yes-votes are dropped from the sample. In column (5), a least median regression technique is used. In columns (6) and (7), the dependent variable is Log(*YES*/100-*YES*) and in column (7), all variables are entered in logarithms.

Table 2. Determinants of the support for membership in the EU

	(1) *2SLS*	*(2)* *2SLS*	*(3)* *2SLS*	*(4)* *2SLS*	*(5)* *2SLS*	*(6)* *2SLS*	*(7)* *2SLS*	*(8)* *2SLS*	*(9)* *2SLS*
RISK	-0.434	-0.372	-0.750	-0.360	-0.365	-0.360	0.339	-0.369	-0.329
	(0.005)	(0.014)	(0.040)	(0.010)	(0.011)	(0.024)	(0.020)	(0.016)	(0.016)
$RISK^2$	0.006	0.005	0.074	0.005	0.005	0.005	0.005	0.005	0.005
	(0.014)	(0.016)	(0.084)	(0.009)	(0.012)	(0.029)	(0.017)	(0.017)	(0.010)
INCOME	0.271	0.155	0.258	0.140	0.207	0.164	0.084	0.139	0.129
	(0.001)	(0.067)	(0.003)	(0.086)	(0.015)	(0.067)	(0.377)	(0.092)	(0.173)
SCHOOL	11.938	10.244	6.880	8.878	10.867	10.242	8.301	10.787	8.497
	(0.000)	(0.000)	(0.001)	(0.009)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
$TRADE_{EU}$	0.933	0.576	2.03	0.388	0.565	0.596	1.31	0.513	0.942
($\times 10^7$)	(0.196)	(0.416)	(0.018)	(0.577)	(0.410)	(0.427)	(0.108)	(0.497)	(0.260)
$EXPIMP_{EU}$	2.686	2.393	1.355	2.688	2.190	2.395	2.803	2.421	2.774
	(0.008)	(0.015)	(0.128)	(0.003)	(0.012)	(0.016)	(0.005)	(0.013)	(0.001)
GRANT		-0.743	-0.649	-0.826	-0.792	-0.736	-0.883	-0.740	-0.988
		(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
WELFARE				3.059					2.750
				(0.045)					(0.076)
AGE					0.452				0.515
					(0.467)				(0.354)
UEMP						0.052			-0.023
						(0.833)			(0.919)
POPDENS							0.042		0.035
							(0.030)		(0.058)
PUBLIC								-0.044	-0.029
								(0.681)	(0.781)
ADJ. R^2	0.83	0.85	0.85	0.85	0.85	0.84	0.84	0.84	0.86

White's standard errors have been used. P-values in parenthesis. All regressions also include *AGRI*, *MODERAT*, *SAP*, *TURNOUT*, *TREND* and a constant. *TURNOUT* is instrumented for using turnout ratios from the 1991 and the 1994 parliamentary elections. In column (3), *RISK* and $RISK^2$ are calculated using first-differenced industry level time series, without regressing these on a time trend.