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The euro – what's in it for me?
An Economic Analysis of the Swedish Euro Referendum of 2003

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The euro – what's in it for me?

An Economic Analysis of the Swedish Euro Referendum of 2003

By Lars Jonung and Jonas Vlachos*

December, 2007

Abstract: The Swedish referendum on the euro in September 2003 is an exceptional event for researchers of monetary unions and of European economic integration. Voters chose between maintaining the domestic currency, the *krona*, and replacing it with the euro, the single currency of the European Union. The referendum revealed significant dividing lines between Yes- and No-voters in areas such as income, education, sex, employment, geographical location and industrial structure.

The aim of this study is to explain the large differences in voting behaviour. The empirical analysis of the referendum outcome is based on the traditional optimum currency area (OCA) approach, merged with an account of the distributional effects of Swedish membership of the euro area as they were perceived by the voters. The OCA approach builds upon the trade-off between reducing transaction costs by entering a monetary union, thus increasing trade and income, and obtaining macroeconomic insurance by having a domestic currency with a flexible exchange rate. This trade-off was perceived differently by voters depending on their evaluations of the costs or risks and the benefits or gains of adopting the euro versus keeping the *krona*, the domestic currency.

We use the OCA approach to generate a set of hypotheses concerning voting behaviour that are explored in our econometric tests based on exit polls covering more than 10,000 voters on the day of the euro referendum. Our econometric results suggest that the OCA approach has strong predictive power when explaining differences in voting behaviour across groups in society. In particular, we demonstrate that insurance considerations dominated the prospect of reduced transaction costs in the referendum. It did so in a systematic way across segments of society indicating that voters were capable of making rational comparisons of the costs and benefits of monetary unification. Voters asked themselves: The euro – what's in it for me? Then they voted accordingly.

Key words: Euro, krona, referendum, optimal currency theory, monetary union, Sweden, EU.

JEL classification: E42, F15, F33, F59, H50 and N14.

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1. Introduction¹

On Sunday September 14th 2003, voters in Sweden went to the polls to answer the question: “Do you think that Sweden should introduce the euro as its official currency?”² There were three options: “Yes”, “No” and a blank ballot. The voters decided whether to maintain the domestic currency, the *krona*, which was introduced as the official currency unit in 1873, when Sweden adopted the gold standard, or to replace it with the euro, the currency of twelve of the then fifteen Member States of the European Union, that had been introduced in 1999 and that came into physical existence in January 2002.

The Swedish euro referendum in September 2003 is a unique one in economic and political history. It is the first and so far the only referendum that has dealt with a clear-cut choice between a then freely floating exchange rate and a permanently and irrevocably fixed exchange rate as implied by full membership in the euro area, or more precisely in entering Stage Three of the EMU (Economic and Monetary Union). The voters thus made a choice between the two extremes of exchange rate regimes.

This electoral choice was different from the one facing voters in any previous euro-related referendum in Europe. The No-option implied that Sweden should maintain its domestic currency, the *krona*, based on a floating exchange rate combined with the then inflation targeting policy pursued by the *Riksbank*, the Swedish central bank. The *Riksbank*, which gained independence from the executive authority in the 1990s, announced, on its own initiative in January 1993, a policy regime of inflation targeting. The Bank set a target of a two-percent annual rate of inflation within a band of plus/minus one percentage point to be valid from January 1995.

The Yes-alternative implied that Sweden would eventually become a full member of the euro system by replacing the *krona* with the euro, at the earliest in 2005-2006. In this case, the

¹ We have received constructive comments from Johan Barras, Roel Beetsma, Tom Berglund, Lars Calmfors, Oliver Dieckmann, Per Ekefeldt, Rickard Eriksson, Paul De Grauwe, Jan Fidrmuc, Klas Fregert, David Laidler, Yngve Lindh, Michael Neugart, Henrik Oscarsson and Juhana Vartiainen and from seminar participants at the Hong Kong Institute for Monetary Research, the 2007 Mölle conference and at the University of Leuven. Torbjörn Berglund and Per Näsman helped us to obtain the data used in our econometric work. Louise Rattford has polished our English. An earlier version of this report, which deepens the analysis of the euro referendum as discussed in Jonung (2004), was published by SIEPS, Stockholm in March 2007 as SIEPS report 2007:2. We are grateful to SEIPS for financial support.

² This translation is taken from the press release of the Government on December 12, 2002, officially announcing that the referendum would take place on 14th September 2003.

price stability oriented policy of the European Central Bank (ECB) would replace the national inflation targeting policy of the *Riksbank*.

Other countries have held referenda on the Maastricht Treaty and on membership of the EU. However, in these cases the adoption of the new currency, the euro, was one of a larger set of issues on which the voters had to decide upon. The Danish euro referendum in September 2000 was an exception; there the choice was between adopting the euro or maintaining the fixed exchange rate between the euro and the Danish *krona* within ERM 2. Consequently, the Danish referendum did not represent a choice between a freely floating and an irrevocably fixed exchange rate as in Sweden. Although the outcome of the Danish referendum was a no to the euro, and thus the domestic currency unit was maintained, from a monetary policy point of view, Denmark has since the referendum behaved as if it were a member of the euro area. Seen from this perspective, the Danish referendum was more about choosing the name for the currency unit than choosing between two clearly different exchange rate arrangements, as was the case in the Swedish referendum.³

The Swedish euro referendum was the culmination of a long public debate in which the pros and cons of monetary unification and of a national currency were thoroughly analyzed. The reports of two Government Commissions, one published in 1996 and the other in 2002, preceded the referendum, as well as a stream of books, pamphlets and articles, and a heated public debate in the media and all over Sweden.⁴

The Swedish economics profession took a very active part in the exchange of views, reflecting the tradition of the strong involvement of economists in public debate.⁵ Foreign economists were involved as well.⁶ Their articles were translated and they were interviewed in the media. Issues such as the theory of optimum currency areas, central bank independence, the proper balance between monetary and fiscal policies, and the Stability and Growth Pact of the EU became familiar to many voters. In short, the standard textbook arguments for and against membership of a monetary union were part of the messages of the two camps –

³ Still, the Danish exchange rate to the euro is not irrevocably fixed. Denmark has the option of changing it although domestic policy-makers regard this option as highly undesirable. At this point the Danish monetary system should to all intents and purposes be regarded as that of a currency board.

⁴ See SOU 1996:158 and SOU 2002:16.

⁵ See Carlson and Jonung (2006) on this tradition.

⁶ Thorvaldur Gylfason, Philip Lane, Robert Mundell, Andrew Rose and Joseph Stiglitz, among others, gave their views on the *krona* and the euro in the Swedish media.

although weighted differently, extended, combined and blended with non-economic arguments in the campaign.

This lively public debate ensured that voters were able to obtain information about the benefits and costs of, on one hand, maintaining a domestic or national currency and, on the other, entering a monetary union like the euro area. Thus, to a researcher of economics as well as of political science, the Swedish referendum represents a unique opportunity to examine the determinants of voters' perceptions of the benefits and costs of two alternative monetary regimes: a regime based on a domestic currency with a freely floating exchange rate versus a regime founded on membership of a monetary union with a freely floating exchange rate towards the rest of the world. Presently, according to the majority view among economists, these two options are the only viable exchange rate arrangements in a financially integrated world. They represent the two corner solutions or the bipolar choice so prominent in recent literature on exchange rate regimes.⁷

The outcome of the Swedish euro referendum 2003 revealed major differences in voting behaviour within the electorate. Dividing lines emerged between high and low-income earners, between voters with a university education and those with a lower level of education, between men and women, between voters in the public and private sectors, between the employed and unemployed, between government employees and municipal employees, between voting districts in urban and rural areas, between voters in Southern and Northern Sweden, between left-wing and right-wing voters to take the most prominent patterns. Many of these differences came as a surprise to commentators and observers.

The purpose of this study is to examine the outcome of the Swedish euro referendum using an economic approach. More specifically, we employ the theory of optimum currency area to explain differences in voting behaviour across groups in Swedish society. To our knowledge, this is a novel approach. So far, practically all analyses of the euro referendum have been carried out by political scientists, adopting a political science perspective.⁸ As a consequence, economic incentives as a potential driver of voting behaviour have been neglected or even

⁷ See for example Fischer (2001).

⁸ Under the guidance of Sören Holmberg and Henrik Oscarsson, a group of political scientists at Gothenburg University has presented an impressive number of studies on the euro referendum. See Holmberg and Oscarsson (2004a).

ignored in spite of the fact that the referendum concerned the choice of the exchange rate regime for Sweden, a truly economic issue.

Our study is structured as follows. First, the election result is summarized. Then the views of the economics profession on the benefits and the costs of membership of a monetary union are briefly considered. Thereafter, the voting behaviour predicted by the political economy of exchange rate regimes, by the arguments of the Yes and No-camps, and by studies on the attitudes of the public towards the euro and European integration is described. Next, a set of econometric tests follows, based on data compiled through exit polls taken on the day of the euro referendum combined with municipal level data. The results from studies on the Swedish euro referendum, on other EU-related referenda and on public attitudes towards the euro and European integration are subsequently compared with our empirical results. The attitudes of the public towards the Swedish currency are considered in a broader context. Finally, a summary concludes.

2. The outcome of the referendum

The referendum attracted a large share of the eligible voters in Sweden: 82.6 per cent cast their votes, and a total of 5,843,788 voters participated. In ten municipalities the turnout was in the top range of 87.0-89.9 per cent. In some smaller districts it exceeded 93 per cent. The voters clearly viewed the choice of currency as an important issue.⁹

The No-alternative received a clear majority with 55.9 per cent of the votes. The Yes-vote comprised 42.0 per cent and approximately 2 per cent opted for a blank vote. A mere 0.1 per cent of the votes cast were declared invalid. The No-vote was greater than most observers had expected, although it had been predicted by the opinion polls. The result was immediately recognized as a resounding victory for the No-camp. The Government announced that the outcome was to be respected.¹⁰

⁹ The referendum gained tragic attention through the murder of the Foreign Minister, Anna Lindh, a strong supporter of a Yes to the euro, a few days before the election. In all probability, her death had no significant impact on the outcome of the referendum.

¹⁰ The No-vote in the referendum put Sweden in a complicated political situation as it has no opt-out clause, in contrast to Denmark and the United Kingdom. A strict legal interpretation of the Maastricht Treaty means that Sweden must join the euro area as soon as all the necessary criteria of the Treaty are fulfilled by Sweden.

The referendum revealed clear divisions across groups of voters based on income, education, gender, sectors of employment and ideology. Another important division concerned geographical voting patterns. The Yes-vote was concentrated to two parts of Sweden: first, Stockholm, the capital, and the municipalities surrounding it, and second, Skåne, the southernmost province. The rest of Sweden, in particular Norrland, the northernmost part of Sweden, voted strongly against the euro and in favour of keeping the *krona*. In short, the further north and the further away from the capital, the stronger the No-vote.

The municipality of Haparanda, the main town on the border with Finland in the far north, was one much publicized exception to this pattern. Here the outcome of the vote was a solid Yes. The voters of Haparanda were familiar with the euro as it was already in circulation in neighbouring Finland. Thus, many shops in Haparanda displayed their prices in both *kronor* and euro. The euro is accepted as a means of payment in most shops in Haparanda. It is generally held that this everyday contact with the euro contributed to the local Yes-majority.

It is a challenge to explain these differences in voting behaviour in a consistent manner. The search for an explanation should therefore start from the long process leading up to the referendum. The referendum was preceded by two major official commission reports as well as many months of dissemination of information and campaigning. The arguments advanced in the public debate influenced the voters' perceptions of the benefits and costs of joining a monetary union. We will now turn to these arguments.

3. The economics profession on the euro

Economists were involved in the debate about full Swedish membership of the Economic and Monetary Union (EMU) at a very early stage. A Government Commission Report, published in 1996 as SOU 1996:158, best known as the Calmfors Report, set the stage for the ensuing discussions, both within as well as outside the economics profession.¹¹ The Commission consisted of economists and political scientists. It was headed by Lars Calmfors, Professor of Economics at Stockholm University and at that time Chairman of the Economic Council of Sweden (*Ekonomiska rådet*), the scientific advisory body of the Ministry of Finance.

¹¹ See SOU 1996:158 for the original Swedish report and Calmfors et al. (1997) for an English version.

In short, the economic analysis of the report was based on the traditional theory of optimum currency areas (OCA) listing the expected benefits and costs of full Swedish membership of the EMU.¹² The main benefits were identified as the efficiency gains from a common currency, in other words the reduction in costs concerning international transactions and the elimination of uncertainty concerning fluctuating exchange rates within the monetary union, which would generate more foreign trade and more competition. The loss of monetary policy autonomy was deemed to be the main cost of full EMU membership. The Swedish interest rate would no longer be set by the *Riksbank* in order to stabilize the domestic economy. Instead, the rate of interest would be determined for the monetary union as a whole by its central bank. The surrendering of monetary policy autonomy was believed to be associated with high costs for Sweden in the event of asymmetric shocks to the domestic economy. Thus, a Swedish currency with a floating exchange rate was viewed as an insurance device.¹³

In its analysis of the political aspects, also a part of the Commission's task, the Calmfors Commission argued that Sweden would gain influence within the EU by adopting the single currency. However, the political legitimacy of the forthcoming single European currency was regarded as weak by the Commission.

In its conclusions, the Commission recommended Swedish membership in the long run, but proposed that Sweden should not enter Stage Three of the EMU in the short run, in other words at its start in 1999. The main economic argument was that, in the wake of the financial crisis of the early 1990s, Sweden would be highly vulnerable to country-specific shocks as long as unemployment remained high and the budget deficit large. Under these circumstances, fiscal policy was deemed ineffective as a tool to counteract any negative asymmetric shocks to the Swedish economy. Giving up monetary policy autonomy would therefore imply that any major new shock could raise unemployment to disastrously high levels. The Commission therefore suggested that Sweden should postpone introducing the single currency until unemployment had been reduced and the budget had been consolidated. The Commission also believed that public attitudes would become more positive towards EMU in due course.

¹² The literature on the OCA theory, starting from Mundell (1961), is immense. OCA theory still remains unchallenged as the main theoretical tool for the analysis of the costs and benefits of monetary unification although the initial contributions were made in the early 1960s. However, this body of theory has evolved in various directions. For more recent surveys, see among others Artis (2003), De Grauwe (2003) and Mongelli (2002).

¹³ See the summary in Chapter 13 of Calmfors et al (1997).

The Calmfors Report of 1996 had a strong impact on the public debate on Swedish euro membership that ensued. All parties regarded the report as a balanced and carefully researched assessment of the benefits and costs of entering a monetary union. In this way it defined the analytical framework for the arguments of the Yes and No-sides in the euro referendum in 2003.¹⁴

The recommendation of the Calmfors Commission to postpone entry into the monetary union became initially the official position of the Government and the Parliament. The central bank reform of 1999, making the *Riksbank* more independent, was consistent with the recommendations of the Commission to reduce potential credibility problems for Sweden by staying outside the monetary union. However, the Government did not follow the advice of the Commission as regards preparing for Swedish entry by introducing comprehensive labour market reforms designed to improve the functioning of labour markets, and in this way reducing structural unemployment.

The Government eventually aimed for euro-area membership. One step in this direction was taken by the appointment of a new Government Commission in 2000 consisting of economists with the task of examining the role of stabilization policies and proposing additional measures of stabilization in case Sweden entered Stage Three of the EMU.

The final report of the Commission two years later, SOU 2002:16, acknowledged that Swedish membership of a monetary union would imply a loss in the capacity of the authorities to stabilize the Swedish economy because domestic monetary policy would no longer be a policy tool. It analyzed and proposed a number of measures to improve the efficiency of fiscal policies to compensate for the elimination of the power of the *Riksbank* to frame its policy towards domestic economic conditions, without finding a perfect substitute. In short, the Commission proposed increased reliance on temporary changes in taxes and expenditure, in particular in changes in the value added tax. It also recommended the establishment of an independent fiscal policy council to monitor and advice on the conduct of fiscal policy.¹⁵ The focus in SOU 2002:16 was on the challenges facing fiscal policies if

¹⁴ The Calmfors Report was based on the original contribution of Mundell (1961). In subsequent work, Mundell (1973) took a more optimistic view of the benefits of monetary unification than in Mundell (1961), actually questioning the policy relevance of his previous analysis. The arguments of Mundell (1973) did not attract any interest in the Swedish debate prior to the referendum in 2003. See also De Grauwe (2003, chapter 2) comparing the policy implications of the two studies by Mundell.

¹⁵ See the summary of SOU 2002:16 on pages 25-28.

Sweden adopted the single currency. As in the original Calmfors Report, distributional considerations did not emerge as an issue.

Following the publication of SOU 2002:16 and the general election in September 2002, the Government decided in December 2002, to launch a referendum on the euro in September 2003. This step intensified the debate on the pros and cons of euro membership. The debate *within* the economics profession followed the OCA approach initially adopted by the Calmfors Commission in 1996. As a consequence of ongoing international research, arguments were added during the campaign, like for instance the trade-enhancing effects of a common currency, the endogeneity of monetary unions, the relationship between structural unemployment and the monetary regime, the impact of a common currency on capital market integration. Nevertheless, the economics profession was divided because the costs and benefits of monetary unification were weighted differently. Thus, economists were active within both camps during the referendum campaign.¹⁶

With its departure point in the traditional or original OCA approach and remaining within it, the economics profession focused on the trade-off between efficiency and stabilization. As a consequence, issues of distribution were hardly brought into their analysis – they played practically no role here. The mind-set of the economics profession was firmly moulded in the standard macroeconomic framework where distributional aspects are left out of the picture.¹⁷

This picture changed radically in the referendum debate *outside* the economics profession. Now the effects of the choice of the exchange rate regime on particular groups in society took the centre stage. As discussed in the next section, the No-campaign stressed that the risks or costs of the euro were not equally distributed across Swedish society. The euro was described by the No-side as a threat to those working in the public sector, in particular to women, and to those depending on transfers from the public sector. The rate of unemployment would increase if Sweden joined the euro, reaching average European levels. Thus, differences between various groups in society would increase unless the *krona* was kept as the domestic

¹⁶ While economists, with university as well as non-university employment, appeared quite evenly on both sides of the campaign, an interview study conducted by Lindqvist (2005) reveals that about 80 percent of Swedish professors who had carried out EMU-related research broadly defined were positive towards euro membership while 8 percent of them were negative. Most of the professors of economics active on the No-side in the media, two out of three, had not been involved in any EMU-related research. The opposite holds for the professors on the Yes-side.

¹⁷ No systematic survey of the views and recommendations propounded by the economics profession on euro membership exists. Sverenius (2003), interviewing economists positive as well as negative towards the euro, contains a balanced mix of opinions. The arguments of ten economists positive to the euro are found in Jakobsson (2003).

currency.¹⁸ These arguments ensured that the choice of currency was no longer a choice only between efficiency and stabilization but also a choice concerning the distribution of income and welfare across different segments of society.

4. Analytical framework

Which patterns of Yes and No-voting do we expect to find across groups in society according to economic theory? To answer this question we have followed a four-step procedure to identify a set of explanatory variables to consider in our empirical work. First, we explore the political economy of exchange rate regime determination, more specifically the OCA approach, to derive hypotheses. Second, we focus on the arguments used by the Yes and No-camps during the campaign preceding the referendum in September 2003 in our search for testable hypotheses.

As a third step, we broaden our outlook by moving to international evidence and surveying the determinants of public attitudes towards the euro, the single currency, as revealed in empirical studies. Fourth, the results from studies on European economic and political integration are presented. These studies are of interest as much suggests that groups in favour of integration might also favour membership of the euro area since the euro may be seen as an important step towards increased European integration. In short, factors making the public positive/negative towards economic and political integration are likely to make voters positive/negative to the euro as well. Finally, a set of hypotheses is singled out.

4.1 Voting behaviour predicted by the OCA approach

Since we focus on differences in voting patterns across society, the following question arises: Who is likely to benefit and who is likely to lose from membership of a monetary union? By wording the question in this way, distributional issues immediately take centre stage. A tentative answer can be derived from the theory of exchange rate regime choice, in short from the traditional theory of optimum currency areas (OCA). This body of theory will serve as our reference point to identify testable hypotheses concerning voting behaviour across the

¹⁸ See for example the summary of the arguments of the No-side by Wallin (2004, p. 164-67)

Swedish electorate. To our knowledge, this is a novel use of the OCA approach, as it is rarely applied to issues of distribution. Economists today tend to ignore or see no links between the choice of currency unit and the distribution of income and wealth.

The major trade-off driving the traditional OCA approach stands between the efficiency gains from monetary unification - in other words from an irrevocably fixed exchange rate - and the benefits of stabilization offered by a flexible national exchange rate. The use of a common currency increases economic efficiency by reducing transaction costs in international trade and investments, thus increasing international trade and integration. On the other hand, the existence of a national currency - with a flexible exchange rate and thus of a domestic central bank setting interest rates - offers an insurance device to counteract negative disturbances, usually described as asymmetric, country-specific or idiosyncratic shocks. Insurance, interpreted in a broad sense, is obtained by the greater degree of domestic policy autonomy offered by a domestic currency than by an arrangement with perfectly fixed exchange rates.¹⁹

In short, we expect the trade-off between reducing transaction costs by entering a monetary union and obtaining macroeconomic insurance through a domestic currency with a flexible exchange rate to be reflected in different voting patterns across groups in society as the relative benefits and costs are likely to be unevenly distributed. Consequently, voters who value the reduced transaction costs and thus increased international trade and integration will tend to support a common currency to a larger extent than voters who see fewer benefits from international trade and integration. Likewise, voters who are able to find better insurance and protection through private measures will tend to support a common currency to a larger extent than voters that rely more on macroeconomic insurance and protection through domestic policy autonomy. Next, these general conclusions are developed into a number of more specific hypotheses.

Voters who see their income closely linked to the international economy would benefit more than other voters from a monetary union through the increased opportunities of trade and international contacts attributed to a common currency, including those related to the reduction in exchange rate uncertainty. These positive effects may be counteracted by pressure emerging from stronger international competition. The very same groups may also

¹⁹ Insurance refers here not only to monetary policy and the domestic control of interest rates but also to fiscal policy and other policy measures that can be taken by the nation state given the existence of a national currency.

feel they derive insurance from a flexible exchange rate, in particular if they are active in sectors that are exposed to a high incidence of shocks stemming from international sources. Thus, the groups that stand to gain the most from reduced transaction costs are to some extent also the ones that stand the most to lose from giving up the flexible exchange rate as an insurance device. The effect that dominates for the internationally exposed groups is in other words an empirical matter.²⁰

Furthermore, a diversified economy gives better protection against macroeconomic shocks than a specialized one. Thus, voters in diversified regions are likely to be more in favour of the euro than voters in regions depending on one or a few industries. In particular, this argument is valid when the industry structure differs from that of the euro area average since the monetary policy of the ECB is then less likely to be in line with local business conditions.

Voters with no or little exposure to the international economy and who depend primarily on domestic economic developments or with employment in the public sector are likely to prefer national policy autonomy to membership in a monetary union. Such national or domestic policy independence offers them better insurance against domestic as well as international disturbances, symmetric as well as asymmetric ones, than an irrevocably fixed rate. At the same time they are likely to see no immediate benefits from increased international trade and integration. Thus, we predict that voters in the public sector, either employed by or depending on transfers from it, would prefer a domestic currency rather than an international one.

A number of additional predictions can be derived from the OCA approach. Voters with high incomes and higher education are likely to benefit more from the internationalization of product, capital and labour markets than low-income voters with a low level of education. They travel more across borders; they are more likely to work and live abroad, and carry out real and financial investments abroad. Since high-income earners are better protected against shocks and disturbances in their capacity as wealthier people possessing alternative opportunities, we expect them to vote yes to a common currency to a larger extent than low-income earners. To the extent that party affiliation and ideology is determined by economic characteristics, in other words that high-income earners tend to support parties to the right and low-income earners parties to the left of the political spectrum, we would expect voters to the

²⁰ Note that Mayda et al (2007) find that risk aversion are related to anti-trade attitudes and that this effect is smaller in countries where the government provides substantial income insurance.

right to support the euro to a greater extent and voters to the left to give relatively more support to the domestic currency.

Due to lack of data, there is little research on the impact of different exchange rate regimes on the distribution of income and wealth.²¹ Still, available empirical work on the political economy of exchange rate regimes roughly supports the predictions of the OCA approach as outlined above. Surveying the US record, Frieden (1994) suggests that “Internationally-oriented economic groups prefer fixed exchange rates, domestically based groups prefer floating rates”.²² We expect a similar pattern to emerge across socio-economic groups in the Swedish euro referendum.²³

According to the OCA approach, we should expect fixed exchange rates to be maintained by countries with extremely large open sectors. It is true if we look at Hong Kong, Singapore and city-states such as Andorra, we see examples of very open economies with fixed exchange rate regimes. On the other hand, countries with relatively closed economies, such as the United States and the euro area, adhere to floating exchange rates.²⁴ In a country like Sweden, neither fully open nor fully closed, the benefits and costs of monetary unification are likely to be unevenly distributed across society; at least voters in different sectors of the economy are expected to perceive the gains and losses differently.²⁵ This is an empirical issue that we will turn to later on.

4.2 Voting behaviour predicted by the referendum campaign

The public debate preceding the referendum concerned a broader set of arguments for and against the euro than those stemming from the standard economic theory of monetary unions,

²¹ See for example Eichengreen and Frieden (2001, p. 12): “There is almost no empirical work that successfully measures the distributional effects of different international monetary regimes.”

²² Using econometric tests to examine the voting behaviour in the 1896 US presidential election, an election where the choice of exchange rate system was a crucial issue, Eichengreen (1995, pp. 25-29) found support for a political economy explanation of the share of votes of the two presidential candidates.

²³ The theory of exchange rate regimes also supplies predictions concerning the appropriate level of the exchange rate to enter a monetary union. In short, according to Frieden (1994, p. 85); “producers of tradable goods favour a relatively lower (more depreciated) exchange rate, which makes their products cheaper relative to foreign goods. On the other hand, producers of non-tradables support a relatively higher exchange rate. This also holds for international investors”. The choice of entry rate for the *krona* into the euro area was not an issue in the Swedish euro referendum, although it emerged a few times in the debate.

²⁴ See for example Eichengreen and Leblang (2003, p. 805): “More open economies are more likely to peg, as predicted by the theory of optimum currency areas”.

²⁵ The ratio of exports to GDP was around 44 per cent in Sweden at the time of the euro referendum. The corresponding ratio for the US and the euro area was much smaller.

dealing with economic as well as non-economic issues. The consequences on the distribution of income of a flexible and a fixed exchange rate of the *krona* were compared. A host of political views concerning the future of Sweden as a nation state, as a welfare state and as a democracy emerged. Most prominently, the role of the welfare state and the tax system as an insurance mechanism was given a great deal of attention. It is difficult to do justice to the multitude of opinions expressed in the summer of 2003. The arguments evolved during the campaign as well.²⁶

4.2.1. The arguments of “Yes to the euro”

The Yes-camp primarily stressed the economic benefits of euro membership. Trade and competition would increase, the rate of interest would fall, and economic growth and employment would rise. New jobs would be created. Membership of the euro area would contribute to fiscal discipline. Sweden was so strongly integrated with Europe that membership of the euro area was a necessary step to take. The Yes-campaign presented very detailed calculations of the rise in employment for every municipality of Sweden.

There was a political dimension to the Yes-campaign as well. Sweden would be able to influence EU policies to a greater extent as a member of the euro area than as an outsider. Sweden should break away from its neutral stance and play a more active role in forming the future of Europe. The euro was viewed as a method of establishing peace and prosperity in Europe. A No to euro-area membership would contribute to isolationism and xenophobia. In a globalised world, national independence for a country like Sweden was deemed fairly restricted anyway. Thus, it was better to be part of the euro area than to stay outside it.²⁷

4.2.2 The arguments of “No to the euro”

The No-camp also emphasized economic factors. It stressed the insurance value of having a national central bank that could target the domestic rate of inflation and maintain a floating exchange rate, isolating Sweden from country-specific shocks. Swedish unemployment would rise to the average EU level if Sweden joined as the ECB gives priority to low inflation. The

²⁶ So far, there is no complete study of the arguments of the Yes and No-sides available. A chronology of the campaign is given in appendix 2 in Dahlsson and Johansson (2004). The arguments are also discussed in the various contributions in Oscarsson and Holmberg (2004a).

²⁷ The arguments of the Yes-campaign as they emerged in the media are summarized by Wallin (2004).

No-side argued that euro membership would restrict the Swedish welfare state, restrain taxes and public expenditure, reducing the scope of transfer payments. Fewer resources would be available for schools, hospitals and public care for both young and old. Thus, the burden of a Swedish euro membership would fall disproportionately on those dependent on the public sector, on low-income earners, on women, on the poor and the unemployed.²⁸ Inequality would increase. In short, the euro was described as a threat to the Swedish model, in particular as a threat to women and groups depending on the public sector.²⁹

In addition, the euro was projected as a risky currency, a political construction that had not yet proved that it was going to survive. The slow growth on the European continent, in particular in Germany, and the failure to adhere to the fiscal discipline as set out by the Stability and Growth Pact were taken as proof of the problems of the single currency.

The No-camp brought up several political issues against the euro. The process of European economic and monetary integration was described as a threat to Swedish democracy. Crucial decisions would be moved from the *Riksdag* in Stockholm to “Brussels” and from the *Riksbank* to the ECB in Frankfurt. Swedish voters would lose power and influence in the event of a Yes to the euro. There was a nationalistic streak in the No-campaign as well: The Swedish model was a better model than those of the euro members. Swedish unemployment was lower than in the euro area and Swedish economic growth was higher.³⁰ The balance of power on the Swedish labour market would change in favour of the employers while the power of the unions would be reduced. The No-camp also argued that Sweden could wait and see how the euro evolved, thus a No could be reversed while a Yes was irreversible and thus riskier and more dangerous than a No.

From the above account of the arguments presented by the Yes and No-sides in the run-up to the referendum in 2003 we are able to derive a set of explanatory variables. We would expect the following patterns. Voters benefiting from the opportunities created by international trade

²⁸ The arguments of the No-campaign as they emerged in the media are presented by Wallin (2004).

²⁹ See for example Wibe and Johansson (2004, p. 104), both active in the No-campaign, describing the risk profile of full EMU membership in the following way: "The risks involved from EMU membership are not uniformly distributed across the population. Those most exposed on the labour market, those with the lowest education and lowest income, take a greater risk than others."

³⁰ See Widfeldt (2004) for an analysis of the role of nationalism in the referendum-campaign preceding the euro referendum and as a determinant of the election outcome. He finds a pattern suggesting that No-voters were more critical of internationalism, multiculturalism, labour immigration, development aid, and refugees and more willing to support Swedish values than Yes-voters.

and finance would tend to vote for the euro compared to other groups. We also expect those groups that have best “labour market insurance” to vote for the euro to a larger extent than groups that have less “labour market insurance”, in other words those who are less likely to get a new job quickly at roughly the same pay as the previous job. Well-educated voters, high-income earners, professionals, white-collar workers and urban voters are more likely to vote for the euro than less-educated, low-income earners, blue-collar workers and voters residing in rural areas. Voters dependent on public-sector transfers and wages such as the unemployed, those on sick leave, pensioners, and public-sector employees are predicted to vote for the domestic or national currency to a larger extent than voters with a high income, working in the private sector with a higher level of education.

Thus, we arrive at roughly the same predictions as those derived earlier from the OCA approach. This is not surprising since the campaign rhetoric was strongly influenced by the OCA interpretation adopted by the economics profession in Government Reports and public debate prior to the referendum. The proponents of a Yes to the euro stressed the expected benefits of a monetary union, playing down the expected costs, while the No-proponents did the opposite, thus projecting and reinforcing the economic incentives driving voting behaviour in the referendum. The No-side also argued that the most disadvantaged segments of society would be exposed to the greatest risks of euro membership.

4.3 Voting behaviour predicted by public attitudes towards the euro

So far we have dealt with the Swedish record. It may be that our predictions are due to specific Swedish institutional, political and historical features. For this reason we consider here and in the next section evidence from other countries. By now the determinants of attitudes towards the euro and the EMU have been examined in several empirical studies. Many of them are based on data from the period prior to the introduction of the euro. Practically all studies are founded on data collected by the Eurobarometer surveys, more specifically on the replies given by individuals to questions that are related to their attitudes towards the single currency.

From this empirical literature we can distil a number of economic and political variables that exert a significant impact on the support of the single currency. These variables are summarized below as well as in Table 1 and Table 2. Table 1 lists the variables that have

proved to be significant in statistical work on individual data. In a similar vein, Table 2 covers variables identified in studies based on country-specific characteristics.³¹

Education (human capital). Human capital or the level of education is commonly a significant variable. The standard explanation is that individuals with higher education are able to benefit economically from the market opportunities created by the euro through trade, finance and labour mobility. Likewise citizens with good occupational skills are likely to gain more from the euro than those who are less skilled. This explanatory factor is closely linked to personal income and wealth as discussed below. These results emerge from several studies according to Table 1.

Personal income and wealth (financial capital): Individuals with high incomes (due to occupational skills/higher education) and with large asset holdings stand to benefit more from a monetary union with free movement of capital across borders than individuals with low incomes. Wealthy people have the capacity to benefit from the openness of capital markets. It is also suggested that membership of a monetary union will reduce the extent of redistributive policies, in this way favouring the wealthy as well. Tests of the effects of the real income of voters tend to prove that this variable is significant for the support of the single currency as seen in Table 1.

Employment/unemployment: Individuals who are unemployed are usually found at the lower end of the income scale. Empirical work demonstrates that unemployment leads to a rejection of the euro. The exact mechanism behind this attitude is unclear. The unemployed see few benefits in a single currency. They may view it as a threat to unemployment benefits received from the State or as a source of additional competitive pressure that keeps companies away from recruiting new staff.

Closeness to border: Border residents or citizens living close to a border with another member of the monetary union have been found more supportive of the euro than those living far from the borders. This group is expected to gain more from cross-border shopping by being able to exploit arbitrage opportunities which arise due to the use of the single currency.

³¹ Tables 1 and 2 present a very stylized picture of the econometric results. Often the outcome of the tests is modified and qualified depending on the set of countries used, data employed, specification of the tests etc. Thus, the picture given by the two tables should be regarded as a highly simplified one.

Men/women: Many studies use sex as a control variable, usually finding a significant effect. Men are as a rule more positive towards the single currency than women. This pattern holds across countries. Few convincing economic arguments for this gender effect have been established so far.

Age: Age is a common control variable. However, no clear and stable pattern emerges for age. Sometimes the view is put forward that the older generation would prefer a single currency because they remember the devastation of World War II and thus view the euro as a sign of peaceful cooperation that might prevent new wars in the future. Such an effect has been difficult to establish. On the other hand, older people may find adjusting to a new currency more difficult than younger people.

Sectoral characteristics/locality: Few firm empirical results have emerged concerning the impact of occupation in different sectors of society. One reason is that there is scant data on the sectoral background of the respondents in the Eurobarometer surveys which are the standard statistical database used. However, respondents living in urban areas are commonly found to be more positive towards the euro than those living in rural areas.

Political outlook: Political attitudes are often found to be central determinants of support for or resistance to the single currency. They basically reflect the history of the domestic country concerning independence and macroeconomic performance. According to one interpretation based on the assumption of a class struggle between labour and capital, voters to the right (capitalists, investors, managers etc) prefer a low and stable rate of inflation to hold down the nominal wage demands of the labour class while those to the left prefer high inflation to accommodate the wage requests made by unions and workers. Thus, right-leaning citizens support the single currency while left-leaning citizens are sceptical of the benefits of a monetary union. The presumption is that membership in the monetary union will deliver a lower rate of inflation than a domestic currency arrangement.

National political culture/national pride: Citizens who value the domestic political system and traditions highly tend to reject the idea of a single currency.³²

³² See for example Kaltenthaler and Anderson (1999).

Support for the national government: Several studies have found that citizens who support or are in favour of the domestic government are expected to vote for the single currency. The reason is that national governments are as a rule in favour of full membership of the EMU.

Other factors: Some studies focus on the determinants of public support of the EMU during the convergence process preceding the introduction of the euro in January 1999. During the run-up to the EMU, support for EMU membership was higher in countries with high inflation and high debt to GDP ratios.³³ Thus, the disciplining effect of EMU membership was appreciated by the public in countries lacking such discipline. Length of time as member of the EMS has also proved to be positively related to support for the euro. In the Swedish euro referendum in 2003, such effects were barely of any interest since Sweden had maintained a rate of inflation lower than the euro area for quite some time and since the public finances were in order after the boom-bust crisis in the early 1990s.

A basic impression from Table 1 and Table 2 is that almost all of the economic or socio-economic variables are related to distributive issues. In short, the individuals who are likely to benefit from a single currency are found to be more favourable to entering into a monetary union, while those that see no clear benefits or expect costs from leaving the domestic currency tend to reject the idea of the euro.

4.4 Voting behaviour predicted by public attitudes towards European integration

As a consequence of increased cooperation within Europe, economists and political scientists have turned to studies of the determinants of public attitudes towards European economic integration. By now about 40 referenda regarding European issues have taken place in the EU, serving as a major source of inspiration for research on public support for European integration. Factors making the public positive as well as negative towards increased economic and political cooperation are likely explanatory variables to use in our tests of voting behaviour in the euro referendum. These factors that influence the attitudes towards

³³ Gärtner (1997).

integration are summarized in Table 3 and Table 4, covering individual level and country characteristics.

Tables 3 and 4 reveal roughly the same patterns as in Tables 1 and 2 concerning determinants of public support for the euro. A high income, wealth, higher education, border residence, and employment are positively related to support for European economic and political integration. On the other hand, a low income, low level of education and unemployment are negatively related. Women are less enthusiastic about integration than men. Positive expectations about their future personal income and about the national economy make individuals positive towards the further integration of the EU. National identity is negatively associated with support for integration. Age is not a significant predictor of attitudes towards integration.

The strong similarities between the determinants of support for the euro and for integration suggest that the public across Europe views the euro as an integral part of the European integration process. We should thus expect that the empirical results concerning European integration will be demonstrated in the Swedish euro referendum as well.

4.5 Hypotheses to be tested

We may now summarize our overview of potential explanatory variables for differences in voting behaviour across Swedish society. Theoretical reasoning and empirical studies suggest a number of testable hypotheses regarding the Swedish euro referendum, of course only testable where data is available to us. Condensing the arguments from above, we expect the following economic variables to be positively related to support for the euro: high income, higher education, employment, private sector employment, living in urban areas, and exposure to international trade. The last point depends, however, on whether the benefits from the lower transactions costs of international exchange dominate the loss of the *krona*, the national currency, as an insurance device. On the other hand, we expect voters with a low income, low level of education, who are unemployed or employed in the public sector and other sectors closed to international trade and exposure, who are dependent on transfers from the public sector, who live in rural areas, and areas with a labour market prone to asymmetric shocks to reject the euro by voting in favour of the *krona* to a larger extent than other groups of voters.

Judging from international patterns, we expect men to be more favourable to the euro than women, and age not to be a significant determinant of the vote. We also expect a border effect, in other words voters who live close to a border with the euro area, i.e. with Finland in the north and Denmark and Germany in the south, to be more in favour of the euro than voters living further towards the centre of Sweden.

Turning to the role of attitudes towards Sweden and the EU and to political affiliation, we expect voters favourable towards European integration and the EU to vote for the euro to a greater extent than voters favourable towards Swedish identity and Swedish national policy autonomy. We also expect a political or ideological dimension in the sense that right-wing voters are likely to be more in favour of the euro than left-wing voters.

Basically our suggested tests evolve around the gains from reduced transaction costs and the loss of macroeconomic insurance. These patterns are roughly the same as those suggested above by the OCA approach although amended with the structural characteristics of Swedish society. Let us now turn to our empirical study.

5. Empirical methodology

In the empirical analysis, we have access to two sets of data, for individuals and for municipalities. For individual level data, we use a probit model to estimate the probability of an individual voting Yes to the euro, in other words for full membership of the Economic and Monetary Union (EMU). Our point of departure is the following relationship:

$$(1) \quad \textit{Probability of voting Yes}_i = a_0 + a_1 \textit{Costs}_i + a_2 \textit{Benefits}_i + \textit{Other determinants}_i$$

In plain English, we estimate the probability of a respondent voting Yes, while we control for a host of factors that may have influenced his or her decision.³⁴ We use i to indicate individuals. \textit{Cost}_i and $\textit{Benefits}_i$ are the variables indicating the possible costs (or risks) and benefits (or income gains) associated with membership of the euro area as perceived by the

³⁴ More formally, we estimate $\Pr(\textit{yes}_i = 1 | \mathbf{x}) = \Phi(\beta_0 + \beta_1 \textit{Costs}_i + \beta_2 \textit{Benefits}_i + \mathbf{X}\boldsymbol{\beta})$ where $\Phi(\cdot)$ is the standard normal cumulative density function and \mathbf{X} is a vector of control variables.

individual voter. *Other determinants*_{*i*} are a set of control variables that may influence the voting decision of an individual.

When we analyze the aggregate (municipal) level data, we estimate the determinants of the regional share of votes in favour of euro membership. More formally, we estimate the following relationship using ordinary least squares:

$$(2) \quad \text{Share of Yes-votes}_m = b_0 + b_1 \text{Costs}_m + b_2 \text{Benefits}_m + \text{Other determinants}_m$$

Naturally, *m* indicates municipalities. As in the first equation, *Other determinants* represent a set of control variables allowing us to take various background characteristics into account. In order to further test the derived hypotheses, we also include interaction effects between municipal level variables and individual characteristics.

Equations (1) and (2) reflect the trade-off highlighted by the OCA approach. Here the voters face a choice between the costs and benefits of adopting the euro compared to staying with the *krona*. The cost term represents the loss of macroeconomic insurance from eliminating the domestic currency and thus the opportunity cost of a domestic monetary policy. We do not have explicit measures of the costs and benefits of monetary unification. Instead we construct a set of proxy variables for these concepts. To sum up, our tests will demonstrate to what extent the public holds a consistent OCA-model in its mind when voting for or against the euro.

6. Data used

We make use of two different data sources. The first is the exit poll conducted during the day of the referendum in 2003. This data allows us to analyze the determinants of individual level attitudes towards entering the euro area. The main advantage of this data set is that it is collected at the lowest possible level of aggregation, that is from the individual voter. The main disadvantage is that we are constrained by the set of questions asked in the exit poll survey. In addition, regional characteristics may have important effects on voting behaviour not revealed in the use of individual data. For these reasons, we explore municipal level data that allows us to examine more aggregate determinants of voting patterns. The two data

sources are merged as well, thereby allowing us to examine the interaction between individual and municipal level characteristics.

6.1. Exit poll data

An exit poll was conducted during the Swedish euro referendum by the Swedish public service television broadcaster, SVT. The poll was carried out in 80 election districts and at 40 postal voting stations on the day of the election. The location of the polling stations is a municipal indicator used to merge the exit poll and the municipal level data.³⁵ Out of Sweden's 290 municipalities, 83 were represented in the exit poll. In total, 10,731 responses were gathered, and the response rate was approximately 78 percent.³⁶

The main outcome variable is a binary indicator taking the value 1 if an individual voted Yes to euro membership, and 0 if the vote is a No to euro membership. In order to check the representativeness of the exit poll data, we aggregated the exit poll responses to the municipal level and compared the aggregated vote shares to the actual vote shares in the 83 municipalities for which we had overlapping data. From the exit poll we obtained an average (standard deviation) of 41 (13) percent Yes-votes, and in the municipal level data there were 37 (11) percent Yes-votes. Thus, there is some indication of an over-sampling of Yes-voters in the exit poll, but in our opinion the difference is small.

The respondents were then asked to rank the importance of certain policy dimensions that influenced their decision. The respondents were asked to put a weight (on a scale from one to five) on the importance of each policy dimension such as the *Interest Rate*, the *Welfare State*, the *Swedish Economy*, the respondent's *Private Economy*, the value of *National Independence*, the value of being able to *Influence the EU*, and *Gender Equality*.³⁷

Since some groups may have systematically assigned higher or lower weights across all these questions, we normalize the variables with the average weight across all motivational answers. Thus, we in effect analyze the importance of each answer, compared to all the other

³⁵ Since voters were allowed to vote in post offices in other municipalities than where they resided or worked, the match is not perfect. However, the measurement error induced by the matching is likely to be insignificant.

³⁶ The exit poll method is described in Hernborn et al (2002).

³⁷ Other motivations were also given in the exit poll. Since our focus is on more narrow economic reasons behind voting behaviour, we limited our empirical analysis to the above-mentioned questions.

motives of the respondent. While this procedure removes some of the variation in the data, it also reduces the risk of finding a spurious relationship between the motives behind the vote and the various groups we were analyzing.

In the exit poll, the respondents provided information concerning their general attitudes towards the EU, their favoured political party (at the time of the referendum and during the national elections of 2002), ideological position (on a right-left scale), sex, year of birth, citizenship (Swedish or other), trade union membership (which one, if any), employment status (employed, unemployed, retired, student, etc), work classification (white and blue-collar labour, self-employed, entrepreneurs of small firms (1-9 employees), entrepreneurs of large firms (10+ employees), sector of employment (public, municipal or government, or private employment), and where the respondent and his/her parents grew up (rural, small-town, or city, or abroad).

Ideally, we would have preferred information concerning the respondents' level of income and education, which was not provided by the survey. However, trade union membership and work classification can serve as good proxies for this information. Basically, the trade union confederation, LO, organizes blue-collar workers, TCO low and middle level white-collar workers, and SACO professionals with an academic degree. Entrepreneurs are divided into three groups: the self-employed, those with 1-9 and those with over 10 employees.

Summary statistics of the exit poll data are presented in Table 5. Tests of differences between Yes and No-voters are also shown in this table. Among the more interesting differences we find that women were very significantly less willing to join the euro. The same holds for blue-collar workers (and members of LO, the blue-collar union confederation), the unemployed, those on early retirement, and those employed in the municipal sector. Hardly surprising from a Swedish perspective is the fact that left-wing voters were much less willing to join the single currency than right-wing ones.

As for the motives behind the vote, we can conclude that the voters at the aggregate level clearly understood what the referendum was about. No-voters assigned a greater weight to the *Interest Rate* as a motivation behind their decision. They also assigned a greater weight to *Independence*, *Gender equality* and the *Welfare State*. Yes-voters, on the other hand, assigned a relatively high weight to Sweden's capacity to *Influence the EU* and to the *Swedish*

Economy. There was no difference between the weight Yes and No-voters assigned to their *Private Economy*.

Charts 1-3 display additional differences across groups of voters. There was a clear ideological division in the referendum. Voters to the left tended to reject the euro while voters to the right accepted the single currency (Chart 1). Voters favourable towards a United States of Europe tended to support the euro (Chart 2). Chart 3 demonstrates a strong relationship between the attitudes towards Swedish EU membership and towards the euro, if you were for EU membership you tended to vote Yes to the euro. Chart 2 and 3 bring out the positive connection between attitudes towards European integration and towards the euro.

6.2 Regional data

Statistics Sweden provides a wealth of information concerning Sweden's 290 municipalities. For the aggregate level analysis, the main dependent variable is the share of votes in favour of euro membership for every municipality as stated in equation (2).³⁸ Apart from a set of "standard" explanatory variables at the municipality level such as local income, educational level, population size and population density, various age groups, and data on social conditions such as the local unemployment rate and the share of the population living on welfare, some variables warrant a closer description.

In order to measure the impact of trade (and hence the exchange rate exposure) of the local economy, a *trade exposure index* is created for each municipality. This is done by weighting the international trade share of sector i with the employment share within sector i in region m . More formally, the index is constructed as follows:

$$\text{Trade exposure}_m = \sum_i (\text{Employment share}_{im} \times \text{Trade share}_i).$$

Data on municipal level employment shares is obtained from the RAMS-database at *Statistics Sweden*. Data on industry level trade is obtained from the OECD STAN database. Similar

³⁸ Since this variable is bounded between 0 and 1, we followed the standard procedure and performed a log-transformation in the following way: $\ln\left(\frac{\text{Share of yes-votes}_m}{1-\text{Share of yes-votes}_m}\right)$.

indices are constructed for import and export exposure respectively, and for total trade (as well as for imports and exports), trade with the EU, trade with the euro area and so on.

Another way of measuring the local impact of changes in the exchange rate regime is to measure the differences in the local industrial structure compared to the euro area industrial structure. Since we do not have production data at a detailed regional level, we again use employment shares in the respective industries to construct such an index. Formally, we do as follows:

$$\text{Difference in employment}_m = \sum_i (\text{Employment share}_{im} - \text{Employment share}_{i,EURO})^2$$

Using the squared difference means that we put greater weight on large differences. This is to capture the intuitive notion that the difference between two regions with a ten percent difference in one industry is more important than if the regions had a one percent difference in ten industries. Data for these variables is again obtained from RAMS and the OECD STAN. Since this variable is supposed to capture the risk exposure of a region, it is aggregated to the local labour market level, rather than to the municipal level.³⁹ Further, the index is based on the 18 (out of 42) sectors containing tradables. The reason is that the service sector, which to a large extent is part of the public sector in Sweden, is not exposed to the same types of shocks as the tradable sectors. In particular, shocks to the tradable sectors are not as sensitive to local policy choices as the public sector.

Summary statistics for the regional level variables are presented in Table 6 and a correlation matrix is presented in Table 7. The correlations indicate that voters in municipalities exposed to trade (especially exports) with the euro area and with large differences in employment patterns compared to the euro area were less willing to accept the euro. The other correlations basically mimic the differences shown in Table 5; public employment, unemployment, and the share of inhabitants on sick leave or early retirement are strongly negatively correlated with the share of Yes-votes. High-income municipalities and regions with a large share of university-educated inhabitants, on the other hand, have a higher share of Yes-voters.

³⁹ Statistics Sweden has defined 87 local labour markets in Sweden. These are defined according to actual commuting patterns.

This relationship is also highlighted in the scatter plot in Chart 4, demonstrating the correlation between the share of No-votes with paid absence from the labour market – paid in the sense of being financed through support from the public sector. Chart 4 illustrates three extreme cases. The municipality of Danderyd outside Stockholm had the greatest share of Yes-votes and the lowest share of paid absence from the labour market. Strömsund in Northern Sweden had the highest share of No-votes and an extremely large share of paid absence. Haparanda, further to the north than Strömsund, on the border with Finland is a striking outlier. Although it had the highest share of paid absence of any municipality, the majority of the voters in Haparanda supported the euro. As argued previously, the proximity to Finland and thus to the use of the euro is the major explanation behind this exceptional pattern.

7. Empirical results

We first report the main results from the individual level probit-regressions, thereafter we move on to the municipal level results. Finally, the two levels of aggregation are combined.

7.1 Individual determinants of voting behaviour

In the first specification of Table 8 – see column (1) - we estimate the impact of some basic demographic characteristics on the probability of an individual voting in favour of the euro compared to the base group shown in parenthesis. The coefficients shown in Table 8 represent marginal effects. Thus, an estimate of say 0.08 means that members of that group are 8 percent more likely to vote in favour of euro membership relative to the base group.⁴⁰ Women were more reluctant to adopt the euro than men and Swedish citizens less willing to join than foreign citizens who voted in the referendum. Age was positively related to the willingness to join, but the effect was not linear, as shown by the negative sign for the squared age term. This means that while the average effect of being a year older was positive, this effect was smaller for older than for younger voters. Having a parent born outside of Sweden increased

⁴⁰ The interpretation of marginal effects in the probit model is a bit tricky. The reason is that the size of the effect depends on where in the distribution the effect is evaluated. In all regressions, the marginal effect is evaluated at the sample mean. Another approach would be to estimate a linear probability model, which has the disadvantage of not taking into account the fact that the probability of voting Yes must be between zero and one.

the probability of the respondent being in favour of membership. Those who had grown up in rural areas were more negative towards membership than others.

In the second specification, shown in column (2), we add a set of socio-economic indicator variables. Union members of the blue-collar (LO) and low/middle level white-collar (TCO) trade union confederations were significantly more reluctant to adopt the euro compared to members of the Confederation of Professional Associations (SACO) and those without trade union membership. Compared to those with employment, those unemployed or on early retirement were less willing to adopt the single currency. Students, on the other hand, were more willing to introduce the euro. Compared to blue collar-workers, white-collar, the self-employed and entrepreneurs were more positive towards the euro. Respondents employed in the private sector and in the government sector were more willing to enter than those in the municipal sector. Adding these socio-economic variables had a minor effect on the estimates for the demographic characteristics as revealed when comparing column (1) with column (2).

In the third specification, see column (3) in Table 8, we add variables indicating the political attitudes of the voters. Since political attitudes themselves are determined by some underlying preference functions, it is not obvious that they should be included in the regression. Or rather, they should be treated as endogenously (jointly) determined with the referendum vote. This means that the political attitudes are determined to some extent by the same underlying factors that determine the respondents' referendum vote. By just including these attitude variables, therefore, we are likely to overestimate the effect of attitudes on the election result and underestimate the effect of the underlying factors.

The ideal way to deal with this endogeneity problem is to find instrumental variables for the attitude variables. Such instruments are variables that are related to the attitude variable we are interested in, but not in themselves related to the variable we are seeking to explain. However, such variables are difficult to find. In the absence of any obvious variables that could work as instruments for political attitudes, we include indicator variables for right-wing and left-wing ideological leanings, as well as an indicator taking the value one if the respondent wanted Sweden to leave the EU altogether. Hardly surprising, the attitude variables are highly significant and the inclusion improves the fit of the regression substantially; from a pseudo R-squared of 0.07 to 0.26. Considering yourself left wing (right wing) was associated with a 7 (22) percent lower (higher) probability of voting in favour of

euro membership. Those who wanted Sweden to leave the EU were 53 percent more likely than other respondents to vote against euro membership. Including the attitude variables as a rule reduce the effects of the socio-economic variables, but the general pattern remains the same.⁴¹

7.2 Aggregate determinants of voting behaviour

Table 9 displays our regression results for Sweden's 290 municipalities. Our large set of control variables appears to have captured most of the variation in the data. A high income and/or high level of education were associated with a larger proportion of Yes-votes.⁴² A larger share of public employment, a larger share of inhabitants on social welfare, in unemployment or on sick leave/early retirement were associated with more votes against the euro. A larger share of foreign-born inhabitants and a larger municipal population had a positive impact on the share of Yes-votes.

We find a non-linear pattern as regards the age groups. The young eligible voters (ages 18-30) appear to have been relatively negative towards membership. The old (65-74) were in favour, while the very old (75+) were more reluctant to join. Municipalities with a large proportion of small children (ages 0-10) did not differentiate themselves from other regions. All regressions also included eight (unreported) regional indicator variables classifying regions along the city-rural dimension.⁴³ These dummies show that the support for the euro was higher in larger cities, and particularly in the southern part of Sweden (the Malmö region). So far, the aggregate level results in Table 9 are closely aligned to those of the individual level regressions in Table 8.

Now we add our measures of trade exposure and differences in employment patterns to the municipal regressions, in this way getting a more direct test of the costs and benefits of monetary unification. In the first column of Table 9, we see that trade exposure was

⁴¹ In a crude attempt to find an instrument for attitudes towards the EU, we used the level of trust in politicians as an instrument for the "leave the EU" variable. As alternative instruments, indicators of those not voting or voting "blank" in the 2002 parliamentary/general election were used. While both sets of instruments are strongly related to the "leave the EU" variable, this approach is questionable. Basically, one attitude (towards the EU) is instrumented with another set of attitudes (towards politicians and the political system). Since it is hard to convincingly argue that one set of attitudes is "more exogenous" than the other, we have chosen not to report the results here (they are available upon request). Briefly, the results are similar to those in column (3) in Table 8, but the estimated effects for some socio-economic variables are somewhat smaller in size.

⁴² The high correlation between income and education levels makes it difficult to separate the effects of these variables.

⁴³ These are so called "H-regions".

negatively related to the share of Yes-votes. Similarly, regions where the employment structure differs from the employment pattern of the euro area were also less willing to join than the average. Since the insurance value of the *krona* is relatively high in regions where the tradable sector is large, and where the employment pattern differs from the European average, both these results indicate that the decision to keep the Swedish *krona* was, at least to some extent, driven by an insurance motive.

In columns (2) and (3) in Table 9, the trade exposure index is replaced by an export and import exposure index, respectively. The point estimate of the export index is larger than that of the import index, indicating that the insurance value was judged as relatively large in the export sectors. In columns (4)-(6), trade indices based only on trade with the euro area are used. The pattern from the first three columns becomes even more apparent. Municipalities with a great deal of trade exposure to the euro area tended to vote against membership of the monetary union. This is mainly due to the effect of export exposure, while regions exposed to import competition did not differ from other regions.⁴⁴ Although the coefficient on differences in employment patterns only hovers around the 10 percent level of statistical significance, the point estimate is consistently negative.

7.3 Combining individual and municipal data

In Table 10, we add municipal level data to the exit poll data, thereby allowing us to combine the two dimensions of data. Since the exit poll was conducted in 83 out of 290 municipalities, we lose some of the regional variation when merging the two data sets. The exit poll stations were, however, chosen to be representative so it is likely that this effect is of minor importance.

In the first specification in column (1) of Table 10, we replicate specification (3) from Table 8 to facilitate a comparison. In the next specification, in column (2), we add a set of (unreported) municipal level dummies. As shown, the estimated coefficients are stable to this inclusion. The only exception is the variables indicating place of upbringing. This should come as no surprise, since this is basically a geographical indicator. More importantly, the

⁴⁴ The results are similar when we used trade exposure measures based on trade with the entire EU, rather than the euro area alone.

socio-economic variables are unaffected when taking the geographical component into account.

In specification (3), we add the indices for *difference in employment* and *trade exposure*. The results show that voters living in regions with different industrial structures compared to the euro area were indeed significantly more reluctant to join the monetary union, even after taking individual characteristics into account. The trade exposure index remains negative as above, but is not statistically significant in this specification. When the *trade exposure* index is replaced by the *export exposure* index in column (4), the negative point estimate is significant. Thus, the result indicating that voters in regions with high export exposure were relatively prone to seeing the benefits of retaining the *krona* appears quite robust. The results in specification (5), however, indicate that voters in regions exposed to import competition from the euro area did not differ from voters in other regions.

To discuss the size of the effects, we use the estimates in column (4). As explained above, all categorical variables gave the probability difference of a Yes-vote between a member of one group relative to a member of the respective base group. A member of the LO trade union confederation was thus 4.3 percent less likely to vote Yes compared to a non-union member. Similarly, an unemployed voter was 5.6 percent less likely to do so than an employed voter, and a white-collar worker 13.6 percent more likely than a blue-collar worker to vote in favour of euro membership. Since the municipal level variables are continuous, the interpretation of the effect is less straight forward. However, the marginal effect of 0.76 for the *export exposure* index means that if we were to increase export exposure by 0.03 (one standard deviation), voters would be 2.3 percent (0.76×0.03) less likely to be in favour of membership. Correspondingly, increasing the *difference in employment patterns* by 0.01 (one standard deviation) would make a voter approximately 2 percent (1.96×0.01) less likely to cast a Yes-vote.

In Table 11, we introduce interaction effects between individual and municipal level variables. By letting individual and municipal variables interact, we are able to analyze whether the effect of some individual characteristics were stronger (or weaker) in certain types of economic environments. In all specifications, the same base set of individual control variables as in Table 8 are included, along with a set of municipal dummies. By including the latter, we control for the average municipal effect across all individuals within a municipality.

In Table 11, we interact individual characteristics with municipal level differences in employment patterns (columns (1) and (2)), and with export exposure (columns (3) and (4)). In columns (5) and (6), we include all interactions simultaneously. In the even numbered columns, the attitude variables “left wing” and “right wing”, as well as the “leave the EU” dummy are included. This raises the explanatory power of the regressions significantly, but is to some extent questionable since these attitudes themselves may be the result of more fundamental socio-economic (or other) developments.

While most of the interaction effects are statistically insignificant, some results are highly interesting. First of all, in labour markets with employment patterns that differ from the euro area, private employees were significantly less willing to join the euro area compared to the average private employee. This indicates that while private employees on average were more willing to join the euro than municipal employees, the difference between the groups was smaller where the labour market is more likely to be hit by asymmetric economic shocks. Similarly, members of the Confederation of Professional Associations, SACO, were less willing to join compared to other SACO members, if they were located in labour markets where the employment pattern differed from the euro area.

One interpretation of the result for SACO members is that they, due to their higher educational level, were better suited than others when it came to identifying the risks emerging from asymmetric shocks. A further indication of such a mechanism is that students in such regions also appear to have been relatively less willing to join, although this effect is not statistically significant.

Concerning export exposure, private employees in export-exposed regions were somewhat more willing to join the euro compared to other private employees. The point estimate is, however, quite unstable and not always statistically significant. The opposite holds for self-employed individuals who were less willing to join if they worked in regions exporting to the euro area. The sign of the interaction term for the other groups of entrepreneurs were also negative, albeit not statistically significant. These results for the different groups of entrepreneurs are quite a strong test for whether the *benefit effect* or the *cost (or loss of insurance) effect* of the euro membership dominated. When working on export-oriented markets, these groups are able to benefit from increased exports, but are at the same time

highly exposed to risks possibly related to not having a floating exchange rate. The results indicate that the insurance mechanism was dominant for these groups.

One of the most interesting, as well as a most robust, finding is that the unemployed living in export-intensive regions were much more reluctant to join the euro than other unemployed individuals. One plausible interpretation is that the unemployed in these regions have had first hand experience of the sensitivity of the export sector to economic shocks stemming from the international economy.

In the last two columns of Table 11, all interaction effects are taken into account at the same time. Basically, the results from columns (1) – (4) hold in these specifications.

7.4 Motives behind the vote

While we now have a fair idea about who voted in favour of euro membership, we do not know why they did so. In order to probe deeper into this question, we exploit the answers to seven questions in the exit poll asking the respondents to attach a weight on the importance of the *Interest Rate*, the future of the *Welfare State*, the *Swedish Economy*, the respondent's *Private Economy*, the value of *National Independence*, the value of being able to *Influence the EU*, and *Gender Equality*. As explained above, we normalize the variables with the average weight across all motivational answers.⁴⁵

In Tables 12a and 12b, we present OLS regressions using the answers to each of these normalized questions as the dependent variable. In the odd numbered columns, we only include the various groups, and in the even numbered columns, we include an interaction term between each group variable of interest and an indicator taking the value one if the respondent voted Yes. Thus, we do not just analyze differences between different groups, but also differences between the average Yes-voter and Yes-voters within each group. All regressions include the full set of individual control variables, individual attitude variables, and our measures of *export exposure* and the *difference in employment patterns*.⁴⁶

⁴⁵ Again, this procedure is used to take into account the problem that some groups assigned systematically higher (or lower) weights to all questions asked.

⁴⁶ Using municipal dummies do not change the results for the individual level variables to any substantial degree. The same is true if we exclude the attitude variables left-wing, right-wing, and leave the EU.

7.4.1 Who believed that the interest rate was important?

In Table 12a, the dependent variable in column (1) and (2) is the weight assigned by the voter on the *Interest Rate*. This variable is a crucial when trying to evaluate the bearing of the insurance motive on voting behaviour. It is striking that Yes-voters assigned a significantly lower weight to the interest rate than No-voters. This result should be expected. Voters who assigned a higher weight to the *Interest Rate* would be expected to vote No as the Swedish central bank can control and change this rate if Sweden were to remain outside the euro area. This is a strong indication that voters, on average, did indeed understand the options facing them in the referendum.

Respondents living in regions with high export exposure and employment patterns that differ from that of the euro area, tended to assign a greater weight to the *Interest Rate* than those living in other regions. From an insurance perspective, this is precisely what to expect since the value of setting a national interest rate (having an independent domestic monetary policy) should be greatest in these regions. There is no systematic difference between Yes and No-voters in these regions.

Column (1) in Table 12a demonstrates that private employees on average did not assign a different weight to the *Interest Rate* than municipal employees. However, this average hides an interesting heterogeneity among the privately employed. Controlling for the average weight assigned to the *Interest Rate* placed by Yes-voters (column (2)), we find that private employees who voted Yes downplayed the importance of the *Interest Rate* compared to the average Yes-voter. At the same time, private employees assigned a higher weight to the *Interest Rate* than the average voter. Since the interest rate is presumably more important for private employees, this – again – is an indication that voters behaved rationally when casting their vote. No similar heterogeneity between Yes and No-voters can be found among government employees.

Compared to non-unionized respondents, there is evidence that members of LO and TCO assigned a higher weight to the *Interest Rate*, but there is no significant difference between Yes and No-voters in these groups. Among the academic professionals, the SACO members, however, No-voters assigned a significantly higher weight to the *Interest Rate* than Yes-voters. Since the same pattern applies to students and white-collar workers, it is reasonable to

suspect that there are educational/informational reasons behind these patterns: more knowledgeable voters view the cost of giving up the capacity to set the interest rate higher than less well-educated voters.

Unemployed respondents on average did not assign a greater weight to the *Interest Rate* than the employed. The unemployed who voted Yes did, however, consider the *Interest Rate* to be of relatively high importance. This may have been due to a belief among the unemployed that a Yes to the euro would imply lower interest rates compared to if Sweden stayed outside the euro. This was an argument used at an early stage by proponents of the single currency – when Swedish rates were above the euro level. The argument disappeared from the debate when Swedish rates dropped below the euro level, but could still have been borne in the minds of some voters.

7.4.2 Who believed that the welfare state was important?

In Table 12a, columns (3) and (4), the results from regressions estimating the relative weight assigned to the future of the *Welfare State* are reported. As mentioned earlier, the No-campaign stressed that the euro was a threat to the Swedish model and that the euro would reduce the scope of the welfare state. Despite this argument being questionable from a formal point of view since euro-area membership does not place any restrictions on the size of the welfare state; it is obvious that it had some impact since Yes-voters assigned a lower weight to the importance of the *Welfare State* than No-voters.

On average, voters living in regions with employment patterns that differed from the euro area average assigned a relatively low weight to the *Welfare State*. There is, however, considerable heterogeneity within this group. After taking out the average weight assigned to the *Welfare State* motive by Yes-voters, we see that Yes-voters in these regions assigned a relatively high weight to this variable compared to the average Yes-voter. No similar pattern is found for voters living in export-exposed regions. Among the various sub-groups, there are few significant results for this variable. What stands out is that SACO members who voted Yes assigned a relatively low weight to this motive, as did unemployed voters.

7.4.3 Who believed that the Swedish economy was important?

In the final two columns of Table 12a, we analyze how important the development of the *Swedish Economy* was for the respondents' decision. There is no significant difference between Yes and No-voters regarding this dimension. Respondents, especially No-voters, living in regions with employment patterns that differ from the euro area average assigned a lower weight to the *Swedish Economy* than other respondents, since they in all probability viewed the local economic situation as less correlated with the Swedish economy as a whole.

Among the sub-groups, the unemployed assigned a relatively low weight to this variable. This might indicate that the unemployed considered that their private situation was weakly linked to the development of the Swedish economy as a whole. White-collar workers, on the other hand, assigned a high weight to the *Swedish Economy*. For the self-employed Yes-voters, the *Swedish Economy* was relatively important when they cast their votes.

7.4.4 Who believed that the private economy was important?

In the first two columns of Table 12b, we find that there was a tendency for voters in export-oriented regions to assign a higher weight to their *Private Economy* than the average voter. This pattern is similar for both Yes and No-voters in these regions. This result might reflect the opposing effects on exporters caused by euro-area membership: on the one hand, membership was likely to raise exports,⁴⁷ on the other hand, exporters could benefit from the insurance effect offered by the floating exchange rate of the *krona*.

Some groups of respondents assigned a lower weight to the importance of the *Private Economy* when they cast their votes. SACO members, students, white-collar workers, the self-employed, and entrepreneurs all assigned a lower weight to this variable, in particular if they voted against the euro. This indicates that these groups all expected to benefit personally from adopting the euro.

⁴⁷ See Baldwin (2006) for estimates of the trade effects of the euro. Baldwin states that the consensus view is that the euro has boosted intra-euro trade by five to ten percent.

7.4.5 Who believed that national independence was important?

One of the major objections of the No-camp to adopting the euro was that Sweden would give up its national independence along several dimensions, ignoring the fact that some of them were already surrendered when Sweden became a member of the EU in 1995. The counter-argument of the Yes-side was that Sweden would gain in influence within the EU. As seen in columns (3) and (4) of Table 12b, Yes-voters did indeed assign a lower weight to *National Independence* when they cast their vote.

Basically, the pattern of the *National Independence* variable mimics the pattern of the interest rate. This means that voters correctly perceived that the main difference between being an EU member and a member of the euro area was that the latter implied giving up the domestic monetary policy. In this light, it is interesting to see that entrepreneurs (with 1-9 employees) and private employees who voted Yes assigned an even lower weight to *National Independence* than the average Yes-voter. This is consistent with the hypothesis that these groups were highly exposed to the risks associated with losing a domestic monetary policy.

7.4.6 Who believed that influence in the EU was important?

One of the main arguments put forward by the Yes-campaign was that by *not* adopting the euro, Sweden's political influence over EU policies would decrease since Sweden would be viewed as a disloyal and uncommitted EU member. In columns (5) and (6) of Table 12b, we see that Yes-voters did indeed assign a significantly higher weight to the *Influence the EU* motive than No-voters. This pattern is more pronounced among the privately employed, but is actually reversed for members of the LO confederation: LO members who voted Yes assigned a significantly lower weight to the *Influence the EU* variable than other Yes-voters. The academic SACO members assigned a higher weight to the *Influence the EU* variable, as did students, white-collar workers, and entrepreneurs.

7.4.7 Who believed that gender equality was important?

In the last two columns of Table 12b, we show which groups that put a higher weight on gender equality as a motive for casting their vote. In the referendum campaign the No-camp argued that euro area membership would have an adverse effect on women and gender

equality. The precise mechanisms behind these adverse effects were not clearly spelled out, but the fear that the membership would reduce the size and scope of the public sector was part of the argument. In column (8), we see that no-voters put a slightly higher weight on gender equality than yes-voters. The difference is not particularly large, suggesting that this issue was not important for the outcome of the election.

Moving further down in Table 12b, there are few significant results. Generally speaking, groups with a strong labour market position (white collar workers, SACO members, private employees) placed a lower weight on this motive than other groups. The unemployed, on the other hand, found gender equality to be relatively important. There are no asymmetric effects between yes and no-voters within these groups, again showing that gender equality did not divide the Swedish electorate.

7.5 Summing up the econometric evidence

How do our empirical results square with the hypotheses based on the OCA approach suggested initially? In short, they are consistent with our priors as set out on the basis of the political economy of exchange rate systems. Almost all of the variables that we assumed to be positively/negatively associated with a Yes/No to the euro obtain the expected sign. Voters cast their votes as if they based their opinion on an OCA model of the functioning of the Swedish economy. In this sense they were rational – they had a macroeconomic model in their minds. Not only that, they were able to roughly assess at an individual level the costs and benefits of maintaining the domestic currency compared to replacing it with the euro. In the econometric results, the insurance motive emerges as a strong driving force behind the referendum outcome. We are induced to conclude that the majority of the voters voted for insurance, thus contributing to the No-victory.

Two specific results emerge from the econometric tests. First, judging from both individual and municipal level data, voters financially dependent on the public sector, either through employment in the municipal sector or by being transfer-dependent, were relatively unwilling to adopt the euro. Voters in the private sector, with higher education and/or white-collar jobs or management positions were, on the other hand, relatively positive towards euro membership. These results hold even after taking the general ideological leanings of the

respondents into account, and after controlling for which municipality the respondents resided in.

Second, the potential insurance value of the domestic currency, the *krona*, affected voters in a predictable way. The groups that stood to gain the most from retaining the *krona* as an insurance device were indeed relatively reluctant to adopt the euro. This is best indicated by the fact that voters in regions with high trade exposure, especially high export exposure, were significantly more negative towards euro membership.

The same holds for voters living in regions with employment patterns that differ substantially from those of the euro area. Since these regions run a higher risk of being subject to asymmetric shocks than other regions, this again highlights the relative importance of the insurance motive for voting behaviour. The influence of regional employment patterns on voting behaviour was especially strong for voters employed in the private sector. The effect of high export exposure was particularly strong among the unemployed and the self-employed. All in all, these results are highly suggestive of an insurance motive driving voting behaviour: voters exposed to asymmetric macroeconomic risks were relatively unwilling to join the euro, and voters in export exposed regions valued the insurance derived from a flexible exchange rate higher than the positive trade effects expected from joining the euro.

Turning to the motives behind the voting behaviour, it is clear that voters on average had a fairly good grasp of what the referendum was all about; a good grasp in the sense that they were responding in line with the OCA-approach. Yes-voters assigned a relatively low weight to the importance of the interest rate, the value of being independent, and the welfare state. In turn, No-voters assigned a relatively low weight to the value of being able to influence the EU. There were no significant differences between Yes and No-voters in how they valued the Swedish economy or their private economy when they cast their vote.

The importance of the insurance (cost) motive also emerges from the analysis of voter motives. Among other things, voters living in regions exposed to exports and with employment patterns different from the euro area tended to assign a high weight to the interest rate and independence. In addition, privately employed Yes-voters, who presumably are more exposed to asymmetric shocks than publicly employed voters, assigned a lower value to the importance of the interest rate than the average Yes-voter.

As stated above, the econometric results are consistent with the view that the voters held an OCA-model in their minds. Now the question emerges: Did the voters hold the "correct" model of the effects of rejecting the *krona* and adopting the euro? The model of the voters was based on the original Mundell (1961) view of the trade-off between efficiency and insurance when entering a monetary union. Today, however, the economics profession has moved away from the original OCA view as a result of new research and new developments. Thus, we do not suggest that the traditional OCA approach necessarily gave the voters in 2003 the "correct" model of the effects of entering the euro area. It is enough for the purpose of our econometric study to conclude that it provided the voters with a macroeconomic model on which they based their voting judging from our results.

8. Comparisons with other studies

As far as we know, our set of tests regarding the outcome of the Swedish euro referendum is the only one based on a consistent application of the political economy of exchange rate regime choice. For this reason, it is of interest to compare our results with studies on the views of the public towards the euro and European integration adopting alternative methodologies. To what extent are our findings identical to or different from those established in earlier studies? We turn to this question by considering the evidence from the following areas of research; first, studies of the Swedish euro referendum – this is a prime benchmark for our conclusions – second, the record from other EU-related referenda, third, the evidence on public attitudes towards the euro and towards European integration.

8.1 Evidence from the euro referendum of 2003

Political scientists have examined the outcome of the Swedish euro referendum in several reports. The contributions in Oscarsson and Holmberg (2004a) give the most extensive overview. They are mainly based on tabular presentations of data and regression analyses, commonly focusing on the effect on the election outcome of only one factor, such as the impact of ideology, EU knowledge, nationalism, and regional affiliation. The discussion is framed in standard political science theories and models. There is no chapter on econometric

tests based on an explicit economic framework to account for differences in voting behaviour among individuals, nor is the election result discussed by adopting the political economy approach we use. The OCA theory, so prominent in the economic analysis and in the public debate prior to the election of 2003, is not mentioned explicitly in any of the contributions.⁴⁸

The empirical evidence is primarily based on the pooling of two major opinion polls, one made in 2002 before the referendum and one after the referendum in 2003 (*Valundersökningen 2002* and *Folkomröstningsundersökningen 2002*) by Statistics Sweden in cooperation with the Department of Political Science at Göteborg University. In many ways this is a richer data set than the one available from the exit polls. However, it suffers from one major drawback; it does not reveal the choice of the voters as expressed on the actual day of the act of voting. Thus, the data from the exit polls are not exploited as they are in our study.

Surveying the referendum polls, Oscarsson (2004a, p. 278) demonstrates that support for the euro is strongest among groups characterized by a high income, higher education, strong employment protection, full-time employment, good health, good command of foreign languages, and frequent travelling, particularly to countries in the euro area. Roughly the opposite holds for groups that reject the euro. They are at the other end of the social spectrum: have a low income, low level of education, are unemployed, part-time workers, more are on sick leave, they have less knowledge of foreign languages and travel less frequently outside Sweden.

A centre-periphery model is explored where a voter in the periphery – i.e. a No-voter - has the following characteristics: a woman, working class, low/medium level of education, low income, living in the North and in the country side/a small village. A voter in the centre – i.e. a Yes-voter - is a man, middle class, higher education, high income, living in a town or major city in Southern Sweden. The closer you move towards the centre, the greater the likelihood that you would vote for the euro. The gender gap is persistent, regardless of the use of various control variables. The dividing line between private employment and employment in the public sector is a clear one. In addition, within the public sector, voters employed by local authorities are more critical towards the euro than voters employed by central government.

⁴⁸ For example there is no reference to the work of Robert Mundell or other economists on the OCA-approach in any of the contributions in Oscarsson and Holmberg (2004a).

Oscarsson concludes that differences according to class, regions and gender are the three most powerful determinants in a political-sociological model for explaining voting behaviour.⁴⁹

Oscarsson has access to data on income and education, which are not directly available in the exit polls. His empirical work demonstrates that these variables enter with the signs expected from the OCA approach. There is a positive relationship between income and education and support for the euro. Using proxy measures for income and education, we arrive at the same result.

Border effects: Exploring the role of the socio-economic composition of the electorate, Martinson (2004) carries out a counter-factual analysis by asking the question: what would the outcome of the referendum have been if all of Sweden had had the same social and economic profile as Stockholm? Most likely, it would have given rise to a victory for the Yes-camp. Still, sizeable regional differences would exist in the sense that Southern Sweden would have been more in favour of the euro than Northern Sweden. This more positive attitude to the single currency can be ascribed to a border effect, as discussed by Gabel (1998a). People in Southern Sweden, in particular in the southernmost province of Skåne, experience more contact with European neighbours in their daily lives than those living in the inland part of Northern Sweden. They travel more frequently to EU countries and they are more accustomed to the euro. Here Haparanda, placed on the immediate border with Finland in northernmost Sweden and voting for the euro, serves as another illustration of the border effect.

Ideology and political attitudes: The role of ideology is examined in detail by Oscarsson (2004b). His starting point is that there is a stronger relationship between the attitudes towards the EU and ideology in Sweden than in any other EU Member State. Voters to the left tend to reject Swedish involvement in European integration while voters to the right are in favour of it. In a multivariate econometric analysis, Oscarsson finds that the left-right dimension is a major determinant of the voters' choice. The same holds for attitudes towards internationalism, nationalism, gender equality and the environment. Voters with an international outlook tend to support the euro while voters eager to protect Swedish values and who display national pride are in favour of the *krona*. Similarly, voters who stress

⁴⁹ Oscarsson (2004a, p. 277) notes that roughly the same group of voters who opposed Swedish membership of the EU in the referendum of 1994 and rejected nuclear power in the referendum of 1980 voted No to the euro in the referendum of 2003.

equality between men and women and have sympathies with the environmental party (the Green Party) tend to reject the euro.

The basic result of Oscarsson's calculations is that the choice of the exchange rate regime is strongly influenced by political attitudes. Similar results emerge from international studies as summarized in Tables 1-4 as well as in our estimates. Still, the question remains: to what extent are political attitudes the outcome of economic considerations and conditions? Given, for example, a high income, financial wealth, and full-time employment in the private sector, the incentives for a voter to adopt a conservative or liberal political outlook are large.

In an attempt to find out why the euro divides the Swedish electorate, Oscarsson (2004), by building on the results reported in Oscarsson (2004b), carried out a number of tests in the spirit of Gabel (1998a). She concludes that the political divide is most likely due to differences in confidence and beliefs concerning the EU and the effects of the euro. She finds the standard differences in attitudes related to gender, education, class, income, urban/rural and regional affiliation without making any attempt to relate them to a consistent economic explanation.

Knowledge about the EU: In the evening of the day of the referendum, Margot Wallström, EU Commissioner from Sweden, argued that "the fear of the unknown was greater than we had thought", suggesting that the No-victory was due to inadequate knowledge about the European integration process. Oscarsson (2004c) examines this view by exploring the differences among voters with regard to their knowledge about the EU. Knowledge is measured using the replies to a set of eleven questions dealing with the EU, the euro, elections to the European Parliament, macroeconomic conditions in the EU, and the ECB.

Summarizing the replies into five classes of EU knowledge, Oscarsson found systematic and significant differences. In short, individuals with low levels of EU knowledge tended to vote No to the euro while individuals with high levels supported the introduction of the euro in Sweden. In addition, women were overrepresented in the categories with low levels of EU knowledge. Similar differences were also found in knowledge about other issues related to Swedish political life. A positive relationship between support for the euro and general political knowledge emerges. Oscarsson (2004c, p. 382) concludes that "better factual knowledge about the EU among the voters would have taken the victory from the No-side".

The role of economic factors: Economic determinants or forces are assigned an important role behind the decision of the voters in several of the contributions in the Oscarsson and Holmberg volume (2004a). However, this is not done in a systematic way. In a chapter entitled "It's the Economy, Stupid", Holmberg (2004b) is close to our work in spirit. Although he performs no formal tests of a model, Holmberg stresses the role of economic considerations driving the decision of the voters, arguing that economics was more important than in a traditional Swedish general election. More specifically, he finds that voters with a positive view of the past and future performance of their private economic situation as well as of the Swedish economy were more prone, by 15 percentage points, to vote Yes than voters with a negative view. To Holmberg this is an expected outcome as the euro referendum dealt with "economics and money".

In their concluding chapter, Oscarsson and Holmberg (2004b) emphasize economic considerations as a main determinant of the outcome of the referendum. As demonstrated above, the results reported in their volume display great similarities with ours when focusing on identical variables.

As discussed earlier, the referendum on euro adoption in Denmark in 2000 differed from the euro referendum in Sweden 2003 in the sense that the Danish electorate faced a choice between a fixed exchange rate between the domestic currency and the euro and euro membership, while the Swedish electorate had to make a decision between a flexible exchange rate for the domestic currency and euro membership. Starting from exit poll data, Jupille and Leblang (2007) examine the impact of a number of explanatory factors on the referendum outcome in both countries. They find some striking differences between Denmark and Sweden. The Danish referendum was primarily determined by attitudes towards European integration, more so than by economic variables as in the Swedish referendum. This should have been an expected outcome because the Danish voters were confronted with less of a real choice between alternative exchange rate regimes than the Swedish voters. When as in Denmark the referendum concerned primarily the name of the domestic currency unit, *kroner* or euro, private and aggregate economic considerations are likely to play a minor role.

8.2 Evidence from EU referenda

As stated initially, the Swedish referendum on the euro in 2003 is a unique event in the sense that it dealt solely with one clear issue, the choice of exchange rate regime. Still, comparisons of the Swedish euro referendum with referenda on EU and EMU membership are fruitful as these dealt with European integration as well.

The referenda in Finland, Sweden and Norway on membership in the EU, which took place one after the other in the autumn of 1994, have been analyzed in great detail by a group of political scientists in a joint Nordic project. The voting behaviour in the three Nordic countries was almost identical, according to Jensen, Gilljam and Pesonen (1998, p. 316), “The more wealth, education, and prestige a voter possessed, the more likely she or he was to support EU membership. People in urban and suburban areas were more likely to support membership than people in rural and sparsely populated areas.” Voters in the capital or in its surroundings were more in favour of the EU than voters in the periphery. Men appreciated EU membership more than women. Roughly the same pattern holds for the euro referendum nine years later in Sweden.

The discussion by Jensen, Gilljam and Pesonen (1998) and their collaborators is based on cross-tabulations and regressions without any explicit tests founded on predictions derived from economic theory. It is tempting to conclude that their work could be improved by tying it closer to the theory of exchange rate regime choice, since the patterns they reveal are close to those suggested by the OCA approach.

Examining regional variations in the referendum on EU membership in Sweden in 1994, Vlachos (2004) suggests that the referendum represented a choice between two different fiscal regimes. EU membership would limit the room for manoeuvre of national policy-making. According to Vlachos (2004, p. 1590), it would be identical to “a fiscal regime imposing strict restrictions on the national discretion to handle risk-sharing and redistribution between regions.” Staying outside the EU would allow more leeway for domestic insurance through the public sector via taxes, transfers and subsidies, and thus for more redistribution. He predicted that rich regions with a diversified industrial structure would vote for EU membership, while regions receiving high transfers would vote against. In line with these expectations – and consistent with the main results in this report – he found that regions with

high average income and educational levels, small receipts of central government transfers, and a well-diversified industrial structure were relatively positive to membership.

Since Vlachos analyses the referendum of 1994 as a choice between two types of fiscal regimes, thus focusing on the costs and benefits of a “tighter” versus a more “generous” redistribution policy, he makes no explicit reference to the predictions generated by the literature on the political economy of exchange rate regimes. However, these predictions are similar to those he derives. In his opinion, the Yes-victory in the EU referendum could be interpreted as a vote in support of reducing the size of the Swedish welfare state rather than a vote favouring European political integration.

The voting behaviour in the Danish 2000 EMU referendum, which dealt with a choice between adopting the euro or maintaining a fixed exchange rate between the Danish currency and the euro, is close to the pattern found for Sweden in the 2003 euro referendum in many respects. According to Marcussen and Zölner (2003, p. 117) “a No-voter is more likely to have a lower education than a Yes-voter, to have a job at the bottom end of the social hierarchy, and to be female.” However, in Denmark, the No-voters were found at both ends of the political spectrum: either on the far left or the far right, while the Yes-voters clustered in the political centre. Sweden, in contrast to Denmark, had no populist party to the far right during the euro referendum.⁵⁰ Nor did Marcussen and Zölner report any differences in voting behaviour according to region, education or occupational group. Here the Swedish pattern is markedly more segmented.

In a study of the support for EU membership in the candidate countries, Doyle and Fidrmuc (2003) note that the impact of economic integration diverges across segments in society. For this reason they expect to find differences in the voting behaviour of different socio-economic groups. However, they are not ready to predict the effects of various determinants on voting behaviour. Instead they regress support for EU membership and voters’ participation in the referenda on a large number of variables such as sex, age, household size, education, unemployment, income and employment in a search for common patterns. They find that among voters “those with high education (or still in school), white-collar occupations, high income, young age and living in urban areas are more likely to participate in the accession

⁵⁰ See Martinsson (2004).

referenda and vote in favour of EU membership.” To their surprise, “the elderly, blue-collar workers, less educated, those with a repeated history of unemployment, those living in rural areas and also those living in underdeveloped or agricultural regions tend to be against accession and/or do not vote.” Doyle and Fidrmuc (2003, p. 20) are puzzled by this result because they expected these groups to benefit from the redistribution opportunities provided by EU membership.

In a study of the French referendum on the Maastricht Treaty in 1992, Meon (2002), partially inspired by the OCA approach, demonstrates that voters’ perceptions of the economic costs and benefits of a monetary union influenced voting behaviour. Using the economic characteristics of the French regions (*départements*), he concludes that regions with high unemployment tended to vote No to the Treaty. However, he does not find evidence that the degree of openness to international trade across regions in France had any impact on the voters’ choice.

A comparison between the Swedish euro referendum and other EU referenda as surveyed here suggests that roughly the same forces were at work in most of them. Voters high in the social hierarchy are relatively supportive of the European integration process while voters lower in social ranking are sceptical towards integration.

8.3 Studies of attitudes towards the euro and European integration

We have previously summarized the empirical evidence on public attitudes towards the single currency and towards European integration in Table 1-4. These tables demonstrate that a limited set of explanatory variables emerges as statistically significant across European countries such as income, wealth, education, employment, gender, ideology, proximity to border, national identity, and the macroeconomic history and conditions of the domestic economy.

Our work on the Swedish euro referendum is consistent with the results reported in Table 1-4.⁵¹ Our study adds some aspects. It stresses the importance of a number of sectoral divides in Sweden such as private versus public employment. Voters employed in the public sector were

⁵¹ These results reject the view of Giovannini (1993, p. 18) “These observations lead me to the central thesis of this paper: there are no stable or significant constituencies for or against monetary union.” The empirical evidence considered in our report suggests the existence of a number of fairly well-defined groups that differ in their attitudes towards monetary unification.

relatively critical of the single currency. The opposite holds for voters employed outside the public sector. The characteristics of the economic situation at the municipal level are important determinants as well. The insurance motive emerges as a highly crucial argument for the decision on the day of the vote.

9. The choice of the exchange rate regime in a comparative context

Monetary history demonstrates that the acceptance and popularity of a currency is closely associated with the public's trust in the institutions that supply the currency such as the central bank, the parliament, the government and other elements of the political system.⁵² In an old established nation state like Sweden with the *Riksbank* as the oldest central bank in the world, this trust and legitimacy has been built up and has existed for a long time. The traditional functions of the domestic money, the *krona*, as a medium of exchange, a unit of account and a store of value, have usually been self-evident although the frequent devaluations in the 1970s and 1980s and the financial crisis of the early 1990s reduced trust in the *krona*.

Given this background, to replace the *krona* with the euro represents to the Swedish public a radical break with tradition. The new European currency needs a high degree of credibility and trust before it can be fully accepted as a substitute. However, as demonstrated by Chart 5, the Swedish public had little trust in the euro in the year of the referendum compared to other EU Member States.⁵³ Representative samples of the public were first asked to give their view on the European Commission and later asked about their attitudes towards the euro. The question about the European Commission was phrased as follows: "Please tell me if you tend to trust or tend not to trust it?" The question about "A European monetary union with one single currency, the euro" was phrased as "Please tell me whether you are for it or against?"

According to Chart 5, the poll for the United Kingdom displays the lowest degree of trust in the European Commission. It is also low in Sweden and Denmark. The fact that these three countries have all remained outside the euro area is related to their low level of trust in

⁵² For a brief discussion of "trust", see Cohen (1998). The concept is close to that of credibility underlying much of the analysis of modern monetary theory and policy.

⁵³ The data for Chart 5 is obtained from the Eurobarometer conducted in the spring of 2003, prior to the referendum in Sweden in September 2003.

“Brussels” and “Frankfurt”. A simple regression using trust in the European Commission as the explanatory variable behind the Yes to the euro – see Chart 5 – brings out a strong positive relationship across the Member States of the EU.⁵⁴ Countries such as Italy, Belgium, Luxembourg, Ireland, the Netherlands and Spain are at the opposite end of the scale from the United Kingdom, Sweden and Denmark.

History may explain the pattern in Chart 5. The United Kingdom, Sweden and Denmark – all monarchies and stable democracies – have been independent nation states for long periods of time. The three countries have not experienced domestic political violence for centuries. Sweden and the United Kingdom have not been occupied by foreign powers in modern times. Denmark only experienced foreign occupation during World War II. Their domestic political systems enjoy considerable public respect and support. Denmark and Sweden have a well-developed sense of national identity based on a common language and a common religion, a relatively homogenous culture, respected political institutions and a long history of national independence.⁵⁵ Sweden has not been involved in a war for almost two centuries, contributing to both an attitude of isolationism and a common belief that Swedish society is a unique construction.⁵⁶ The late entry of Sweden into the EU in 1995 is a consequence of this sceptical and isolationist attitude towards the European integration process.

Looking at European integration from such a domestic perspective, the institutions of European cooperation, and thus the euro, appear less credible than is the case in EU Member States where confidence and trust in domestic institutions is lower than in Sweden. This relative lack of trust in EU institutions compared to domestic institutions is likely to have influenced the outcome of the Swedish euro referendum. This conclusion is supported by the findings concerning voter attitudes within Sweden; voters sceptical of European integration tended to reject the euro. Similarly, voters positive towards the EU, commonly wanted to adopt the euro.

⁵⁴ The high correlation between trust in the European Commission and acceptance of the euro may also be viewed as caused by a third factor: a positive attitude towards the European integration process, which is transformed into trust in the institutions of the EU including the euro.

⁵⁵ See Marcussen and Zölner (2003) and Östergård (1994) for the history and characteristics of the process of nation-building in Denmark. Stråth (2000) describes the Swedish path to national identity.

⁵⁶ The experience of Switzerland is similar to that of Sweden, contributing to Swiss isolationism vis-à-vis the EU.

10. Concluding discussion

The Swedish referendum on the euro in September 2003 is an exceptional event for researchers of monetary unions. Voters chose between maintaining the domestic currency, the *krona*, and replacing the *krona* with the euro, the single currency of the European Union. For the first time in any country, voters had a clear choice between the two polar cases of exchange rate regimes: either a freely floating exchange rate or membership in a monetary union. The referendum revealed significant differences in voting behaviour across the electorate. Dividing lines between Yes and No-voters emerged in areas such as income, education, sex, employment, geographical location and industrial structure.

The aim of our empirical study is to provide an explanation for the major differences in voting behaviour. We start from the optimum currency area (OCA) approach as it was presented to the Swedish public in the Calmfors Commission Report of 1996. This report and the subsequent debate leading up to the referendum were based on the original Mundell (1961) view of the trade-off between efficiency, thus increasing trade and income, by entering a monetary union, and obtaining macroeconomic insurance by retaining a domestic currency with a flexible exchange rate. Eventually, the public adopted this OCA model as the analytical framework for the referendum. Consequently, it determined voting behaviour and the outcome of the referendum.

The OCA approach allows us to generate a set of hypotheses concerning voting behaviour that are explored in our econometric tests based on exit polls covering more than 10,000 voters on the day of the referendum. We suggest that the OCA trade-off was perceived differently across segments of voters depending on their evaluations of the risks of and income gains from adopting the euro compared maintaining the *krona*. We thus merge the OCA approach with an account of the distributional effects of the choice of the exchange rate system as these effects were perceived by voters.

The OCA trade-off is well illustrated by the effects of export exposure on voting behaviour. Voters in export-oriented regions stand the most to gain from the increased exports brought about by reduced transaction costs if Sweden were to enter the euro area. At the same time, the same voters potentially stand to gain substantially from a flexible exchange rate that offers

insurance against both domestic and international economic shocks. It is a matter for the empirical analysis to reveal which effect will dominate.

A first major empirical finding of our study is that high export exposure was significantly related to the propensity to vote *against* euro membership. Thus, the insurance value of keeping the flexible exchange rate and thus the domestic currency was deemed more important by voters in export-oriented regions than the prospect of reducing transaction costs and increasing international trade by entering the euro area.

A related result demonstrates that voters living in regions with employment patterns that differ substantially from that of the euro area were relatively negative towards the euro. Since these regions run a higher risk of being subject to asymmetric shocks than other regions, this again highlights the relative importance of the insurance motive for voting behaviour. The fact that this result was especially strong for voters employed in the private sector, which is prone to be hit harder by such shocks than the public sector, is corroborating evidence of the role of the insurance mechanism. Recently Mayda et al (2007) have found that risk aversion is strongly related to anti-trade attitudes but that this effect is weaker in countries with a generous welfare state. Our results thus confirm the importance of the insurance motive in determining voter attitudes in the realm of international economic policy.

A second major result is well in line with the empirical findings of other EU-related referenda: voters financially dependent on the public sector, either by being employed by the public sector or by being transfer-dependent, were relatively unwilling to join the euro. On the other hand, voters in the private sector, with high levels of education and/or white-collar jobs or management positions were relatively positive towards euro membership.

These results can also be explained within the OCA framework. Voters with high levels of human capital and income are expected to benefit more from the increased economic integration brought about by euro membership than voters with a low level of education and low income. At the same time, these groups have substantial private "labour market insurance" and private financial insurance in their relatively transferable human capital and higher income and wealth.

The strong effect of being financially dependent on the public sector on voting behaviour may appear puzzling as a Swedish euro membership would not imply any formal or binding restrictions on the size of the public sector, on the level of public employment, on the size of taxation or on the extent of transfer payments. Here the No-camp was most successful in presenting the euro, the single currency, as a threat to the Swedish welfare state.

Our analysis of the arguments used by the voters in the exit poll to account for their decisions to vote Yes or No shows that voters who were in favour of adopting the euro, thus voting Yes, systematically assigned a lower weight to the value of an independent interest rate (and thus to a domestic central bank with the power to set a national interest rate for Sweden) as a motive for casting their vote than the No-voters who were against the euro. In addition, Yes-voters in two groups likely to be negatively affected by asymmetric shocks, private employees and entrepreneurs, assigned an even lower weight to the interest rate as a motive for their vote than the average Yes-voter.

At a general level, the econometric results suggest that the traditional OCA approach has strong predictive power for the differences in voting behaviour across the electorate in the euro referendum. Voters were capable of making rational comparisons of the costs and benefits of adopting the euro and voted accordingly.⁵⁷ Voters apparently asked themselves: the euro – what's in it for me? On the day of the referendum, they replied to this question by voting as if they had a traditional OCA model in their mind covering the complexity of the economic issues raised during the run-up to the referendum. This should not come as a surprise since the public debate on the economic costs and benefits of the euro and the *krona* preceding the referendum was based on the traditional OCA approach.

Actually, the voters on September 13th, 2003 took a step further than the academic economists in charge of preparing the Government Reports on Sweden and the EMU published in 1996 and 2002. The economists focused on the OCA trade-off between microeconomic efficiency and macroeconomic stabilization. The voters added a new and to them missing dimension in the analysis of euro area membership: the distributional consequences of the choice of the exchange rate system. To sum up, our empirical results

⁵⁷ The predictive power of the OCA approach to assess the creation and destruction of monetary unions is commonly regarded as low. See for example Goodhart (1995, p. 452) and Bordo and Jonung (2003, pp. 62-63). However, in this study dealing with the differential impact across groups in society of the choice of exchange rate regime, the traditional OCA theory is able to generate successfully a number of testable predictions.

suggest that the distributional effects of the *krona* and the euro as perceived by the voters account for the large differences in voting behaviour across the Swedish electorate.

We do not consider if the voters held the correct or proper model of the effects of adopting the euro and rejecting the *krona*. This important issue is beyond the scope of our study. In our econometric work, we start from the original OCA model of Mundell (1961), today sometimes labelled Mundell I, because this approach was adopted by the economics profession and presented to the electorate as the proper analytical framework to understand the benefits and costs of monetary unification. It thus influenced voting behaviour in the referendum in 2003.

New research and new developments have induced the economics profession to move away from the original OCA view. In particular, a recent strand of empirical research suggests that monetary unification contributes to financial integration, which increases risk-sharing and consumption smoothing within a monetary union.⁵⁸ The roots of the work on risk-sharing in monetary unions can be traced back to a contribution by Mundell (1973), sometimes classified as Mundell II. Thus the original trade-off between efficiency and stabilization in Mundell I tends to evaporate in Mundell II. In case a new euro referendum takes place in Sweden in the future, the arguments of the Yes and No camp are likely to be revised significantly given these findings about the financial effects of monetary unions. Thus, we do not suggest that the traditional OCA approach necessarily gave the voters in 2003 the "correct" model of the consequences of entering the euro area. It is enough for the purpose of our econometric study to conclude that it provided the voters with a macroeconomic model to base their votes on.

In addition to economic incentives, non-economic factors, most prominently political attitudes and ideology, influenced the voters as well.⁵⁹ Yes-voters were positive towards increased European political integration. Yes-voters wanted Sweden to have stronger political influence within the EU. Many of them expressed support for the idea of a United States of Europe. On the other hand, No-voters saw the euro as a threat to national independence, Swedish

⁵⁸ The study by Asdrubali, Sørensen and Yosha (1996) is commonly viewed as the starting point for empirical work on risk-sharing between US states and EU countries.

⁵⁹ True, political integration and national sovereignty is explicitly mentioned by Mundell (1961) in his seminal contribution as determinants of currency arrangements. He suggests that these factors might not be as strong in Western Europe due to the creation of the Common Market. The Swedish euro referendum indicates, however, that such factors are still decisive.

democracy and the Swedish way of life. They feared that joining the euro meant that decisions of major importance were taken out of the hands of domestic voters and domestic politicians and transferred to Frankfurt and Brussels to be made by policy-makers that were not democratically accountable according to their view. The further to the left, the stronger the No-vote. Only the two parties to the right, the Liberal and Conservative Parties, had a majority of Yes-votes. However, since voters to the left also tend to be low-income earners and more dependent on public transfers than voters to the right, it is difficult to disentangle the effect of politics and ideology from that of economic factors. The ideological stand of a voter is to a considerable extent due to his or her economic position in society.

Finally, the decisions by the Swedish voters in the referendum of 2003 appear to a large extent to be governed by the same determinants that have emerged as significant in studies of public attitudes towards the euro and European integration in other EU countries. Roughly identical economic and non-economic forces concerning the euro are at play all over Europe. Sweden is thus no exception except in allowing its citizens a unique referendum between the national currency and the single European currency.

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Table 1. Determinants of public opinion towards the euro. A stylized summary of empirical results concerning individual characteristics.

Variable (regressor): (characteristics of individuals)	Attitudes towards the euro:		References:
	Relatively positive towards the euro	Relatively negative towards the euro	
Real income/financial capital	High-income earners/the rich	Low-income earners/the poor	Gabel (1998a), Scheve (2000)
Education/human capital	Well-educated	Low educated	Carey (2002), Banducci et al (2003)
Private/public sector	Private	Public	Gabel (2001)
Employed/unemployed	Employed	Unemployed	Gabel (2001), Carey (2002)
Men/women	Men	Women	Carey (2002), Banducci et al (2003)
Border effects	Close to border	Far from border	Gabel (2001)
National identity	Weak national identity	Strong national identity	Gabel (1998a), Carey (2002), Gabel and Hix (2005) ⁽¹⁾ Müller and - Peters 1998)
Assessment of the future private economic situation	Positive expectations	Pessimistic expectations	Carey (2002)

Comments: The table covers empirical studies of the determinants of support for the euro reporting statistically significant results for the explanatory variables. Almost all the studies are based on Eurobarometer data.

(1) Gabel and Hix (2005) find that there is no relationship between national pride and support for the euro in the United Kingdom. However, national identity has a significant negative effect on support for the euro.

Table 2. Determinants of public opinion towards the euro. A stylized summary of empirical results concerning country characteristics.

Variable (regressor): (characteristics of the domestic country)	Attitudes towards monetary Integration:		References:
	Relatively positive towards the euro	Relatively negative towards the euro	
Assessment of the future national economic situation	Positive	Negative	Carey (2002)
Changes in the national exchange rate	Weaker national currency	Stronger national currency	Banducci et al (2003)
Domestic fiscal policy	Loose domestic fiscal policy	Tight domestic fiscal policy	Gärtner (1997)
Domestic deficit/debts	Large domestic deficit/debts	Small domestic deficit/debts	Gärtner (1997), Gabel (2001)
Expected austerity measures due to euro membership		Expected austerity measures (fiscal squeeze)	Banducci et al (2003)
Domestic inflation rate	High domestic inflation	Low domestic inflation	Eichenberg and Dalton (1993), Banducci et al (2003), Kaltenthaler and Anderson (2001)
Trade openness	More involved in EU-trade	Less involved in EU-trade	Gabel (1997), Gärtner (1997), Kaltenthaler and Anderson (2001)
Unemployment	High unemployment	Low unemployment	Kaltenthaler and Anderson (2001)
Independence of the domestic central bank	Less independence	More independence	Kaltenthaler and Anderson (2001)
Length of membership in the EU/EMS	Long membership	Short membership	Gabel (1997), Kaltenthaler and Anderson (2001)

Comments: The table covers empirical studies of variables where statistically significant results are reported.

Table 3. Determinants of public opinion towards European integration. A stylized summary of empirical results concerning individual characteristics.

Variable (regressor): (characteristics of individuals or groups of individuals)	Attitudes towards integration:		References
	Tend to support integration	Tend to reject integration	
Real income	High-income earners (professionals, executives, business owners etc)	Low-income earners (manual workers)	Gabel and Palmer (1995), Gabel (1998a and b), Carey (2002)
Education/ human capital	Well-educated	Low educated	Gabel and Palmer (1995), Gabel (1998b), Karp and Bowler (2006), Carey (2002)
Men/women	Men	Women	Gabel (1998b), Carey (2002), Karp and Bowler (2006)
Employed/ unemployed	Employed	Unemployed	Gabel and Palmer (1995), Gabel (1998a and b), Carey (2002)
Right/left ideology	Right	Left	Gabel (1998b)
Border effects	Close to border	Far from border	Gabel and Palmer (1995), Gabel (1998a and b)
International/ national outlook	International	National	
National identity/ national pride	Weak	Strong	Carey (2002) ⁽¹⁾
National economic benefit/ /personal and national economic expectations	Perceived high benefits/high expectations	Perceived low benefits/low expectations	Gabel and Palmer (1995), Carey (2002), Karp and Bowler (2006)
Peace and security (Relative national suffering during WW II)	Countries suffering heavily during WW II	Countries suffering lightly during WW II	Gabel and Palmer (1995)

Comments: The table covers empirical studies of variables where statistically significant results are reported.

⁽¹⁾ Carey (2002) uses three different measures of "national pride", stressing the difficulty of finding good measures of this concept.

Table 4. Determinants of public opinion towards European integration. A stylized summary of empirical results concerning country characteristics.

Variable (regressor): (characteristics of the domestic country)	Attitudes towards integration:		References:
	Tend to support integration	Tend to reject integration	
National identity/pride	Weak national identity	Strong national identity/pride	Gabel (1998), Carey (2002), Gabel and Hix (2005); Müller and -Peters 1998);
Changes in the national exchange rate	Weaker national currency	Stronger national currency	Banducci et al (2003)
Domestic fiscal policy	Loose domestic fiscal policy	Tight domestic fiscal policy	Gärtner (1997)
Domestic deficit/debts	Large domestic deficit/debts	Small domestic deficits/debts	Gärtner (1997), Gabel (2001)
Domestic inflation rate	High domestic inflation	Low domestic inflation	Eichenberg and Dalton (1993), Banducci et al (2003), Kaltenthaler and Anderson (2001)
Trade openness towards the EU	More involved in EU-trade	Less involved in EU-trade	Gabel (1997), Kaltenthaler and Anderson (2001)
Unemployment	High unemployment	Low unemployment	Kaltenthaler and Anderson (2001)
Independence of the domestic central bank	Less independence	More independence	Kaltenthaler and Anderson (2001)
Length of membership in the EU/EMS	Long membership	Short membership	Gabel (1997), Kaltenthaler and Anderson (2001)
History of independence as nation state	Long history	Short history	Kaltenthaler and Anderson (2001)

Comments: The table covers empirical studies of variables where statistically significant results are reported.

Table 5. Summary statistics (Exit poll data)

Variable	Obs	Mean (full sample)	Mean (no voters)	Mean (yes voters)	T-test of no-yes diff
Yes	10593	0.46			
Woman	10446	0.51	0.57	0.44	12.34
Age	10248	0.44	0.43	0.44	4.41
Swedish citizen	10572	0.96	0.97	0.95	5.67
Parent foreign	10732	0.12	0.10	0.15	6.92
LO	10248	0.26	0.32	0.19	15.12
TCO	10248	0.18	0.17	0.20	2.88
SACO	10248	0.13	0.11	0.16	8.37
Non union	10248	0.43	0.40	0.45	5.01
Employed	10284	0.64	0.61	0.67	6.16
Unemployed	10284	0.06	0.07	0.05	5.32
Retired age	10284	0.13	0.12	0.13	0.80
Retired early	10284	0.04	0.05	0.03	4.78
Home-worker	10284	0.01	0.01	0.01	0.34
Student	10284	0.13	0.14	0.12	3.33
Blue-collar	10106	0.39	0.49	0.27	23.31
White-collar	10106	0.48	0.39	0.58	19.79
Farmer	10106	0.01	0.01	0.01	2.18
Self employed	10106	0.04	0.03	0.05	4.13
Entrepreneur (1-9)	10106	0.03	0.02	0.04	5.24
Entrepreneur (10+)	10106	0.01	0.01	0.01	2.83
Municipal empl.	10038	0.31	0.36	0.25	12.1
Government empl.	10038	0.13	0.13	0.14	1.82
Private empl.	10038	0.51	0.46	0.57	11.20
Left wing	10333	0.37	0.46	0.26	22.14
Right wing	10333	0.31	0.18	0.46	31.04
blankvote2002	9808	0.03	0.04	0.02	6.73
didnotvote2002	9808	0.04	0.05	0.03	5.80
Leave EU	10567	0.24	0.41	0.03	54.56
Stay in EU	10567	0.60	0.35	0.90	72.00
Trust politicians	10543	0.56	0.44	0.70	28.18
Why: Swedish economy	8486	1.12	1.10	1.14	9.64
Why: welfare	8486	1.07	1.10	1.04	14.13
Why: influence	8486	1.00	0.87	1.15	48.86
Why: interest rate	8486	0.96	1.09	0.81	50.76
Why:gender equality	8486	0.92	0.95	0.88	11.52
Why: independence	8486	0.99	1.10	0.87	45.44
Why: private economy	8486	0.98	0.98	0.98	0.76

Data is from the exit poll, *Vallokalsundersökning*, conducted by Swedish Television, SVT, in conjunction with the euro referendum in 2003.

Table 6. Summary statistics (municipal data)

Variable	Obs	Mean	Std dev	Min	Max
Yes votes (percent)	290	35.10	10.97	13.10	75.10
Trade EMU exposure ¹	290	0.09	0.05	0.01	0.27
Export EMU exposure ¹	290	0.04	0.03	0.00	0.15
Import EMU exposure ¹	290	0.04	0.02	0.00	0.14
Difference emp pattern EMU ¹	290	0.02	0.01	0.01	0.06
Income per capita, SEK/1000	290	122.38	17.17	99.29	250.58
University ed (share)	290	0.10	0.05	0.05	0.41
Public employment (share)	290	0.38	0.08	0.17	0.65
Population	290	30951	58987	2575	761721
Population density	290	125.64	420.22	0.00	4058.00
Welfare (share)	290	0.04	0.01	0.01	0.12
Foreign born (share)	290	0.09	0.05	0.02	0.39
Age 0-10 (share)	290	0.12	0.02	0.09	0.17
Age 18-30 (share)	290	0.13	0.02	0.09	0.25
Age 65-74 (share)	290	0.09	0.02	0.05	0.15
Age 75+ (share)	290	0.10	0.02	0.03	0.15
Non-employed 20-64 (share)	290	0.23	0.04	0.14	0.46
Unemployment (share)	290	5.60	2.27	1.80	18.90
Sick leave	290	47.70	9.35	22.10	76.30

¹ See text for precise definitions. The data has been retrieved from Statistics Sweden, apart from data on unemployment which is from the Swedish Labour Market Board (AMS) and sick leave from the Swedish National Insurance Board (*Försäkringskassan*). Sick leave is an aggregation of the incidence of sick leave and early retirement.

Table 7. Correlations (municipal data)

	Yes	Trade	Export	Import	Diffemp	Inc pc	Univ	Pubemp	Pop	Popden	Welfare	Abroad	Age010	Age1830	Age6574	Age75	Nonemp	Unemp	
Trade EMU exposure	-0.16 (0.01)																		
Export EMU exposure	-0.20 (0.00)	0.94 (0.00)																	
Import EMU Exposure	-0.10 (0.08)	0.93 (0.00)	0.74 (0.00)																
Difference emp patt	-0.63 (0.00)	-0.01 (0.90)	0.01 (0.92)	-0.02 (0.72)															
Income per capita	0.73 (0.00)	-0.23 (0.00)	-0.21 (0.00)	-0.23 (0.00)	-0.48 (0.00)														
University edu	0.72 (0.00)	-0.44 (0.00)	-0.43 (0.00)	-0.39 (0.00)	-0.36 (0.00)	0.78 (0.00)													
Public employment	-0.35 (0.00)	-0.49 (0.00)	-0.43 (0.00)	-0.49 (0.00)	0.43 (0.00)	-0.13 (0.03)	0.05 (0.41)												
Population	0.34 (0.00)	-0.19 (0.00)	-0.19 (0.00)	-0.17 (0.00)	-0.19 (0.00)	0.29 (0.00)	0.47 (0.00)	-0.06 (0.32)											
Population density	0.45 (0.00)	-0.21 (0.00)	-0.20 (0.00)	-0.19 (0.00)	-0.28 (0.00)	0.53 (0.00)	0.52 (0.00)	-0.20 (0.00)	0.59 (0.00)										
Welfare	-0.19 (0.00)	0.05 (0.43)	0.05 (0.41)	0.04 (0.53)	0.18 (0.00)	-0.26 (0.00)	-0.15 (0.01)	0.10 (0.10)	0.29 (0.00)	0.04 (0.49)									
Born abroad	0.57 (0.00)	0.05 (0.42)	0.03 (0.61)	0.06 (0.31)	-0.35 (0.00)	0.35 (0.00)	0.26 (0.00)	-0.27 (0.00)	0.35 (0.00)	0.42 (0.00)	0.22 (0.00)								
Age 0-10	0.63 (0.00)	-0.18 (0.00)	-0.20 (0.00)	-0.14 (0.02)	-0.55 (0.00)	0.57 (0.00)	0.44 (0.00)	-0.22 (0.00)	0.07 (0.24)	0.14 (0.02)	-0.29 (0.00)	0.27 (0.00)							
Age 18-30	0.39 (0.00)	-0.18 (0.00)	-0.19 (0.00)	-0.16 (0.01)	-0.22 (0.00)	0.24 (0.00)	0.52 (0.00)	-0.06 (0.34)	0.58 (0.00)	0.40 (0.00)	0.27 (0.00)	0.44 (0.00)	0.11 (0.06)						
Age 65-74	-0.66 (0.00)	0.19 (0.00)	0.19 (0.00)	0.15 (0.01)	0.63 (0.00)	-0.54 (0.00)	-0.55 (0.00)	0.27 (0.00)	-0.34 (0.00)	-0.33 (0.00)	0.11 (0.06)	-0.39 (0.00)	-0.78 (0.00)	-0.54 (0.00)					
Age 75+	-0.65 (0.00)	0.19 (0.00)	0.17 (0.00)	0.18 (0.00)	0.59 (0.00)	-0.57 (0.00)	-0.47 (0.00)	0.17 (0.00)	-0.21 (0.00)	-0.20 (0.00)	0.17 (0.00)	-0.42 (0.00)	-0.83 (0.00)	-0.38 (0.00)	0.84 (0.00)				
Non-employment	-0.17 (0.00)	-0.12 (0.05)	-0.09 (0.14)	-0.13 (0.03)	0.36 (0.00)	-0.26 (0.00)	-0.05 (0.38)	0.32 (0.00)	0.18 (0.00)	0.06 (0.30)	0.47 (0.00)	0.31 (0.00)	-0.50 (0.00)	0.19 (0.00)	0.37 (0.00)	0.31 (0.00)			
Unemployment	-0.46 (0.00)	-0.09 (0.12)	-0.06 (0.33)	-0.12 (0.05)	0.59 (0.00)	-0.36 (0.00)	-0.28 (0.00)	0.46 (0.00)	-0.01 (0.92)	-0.16 (0.01)	0.33 (0.00)	-0.07 (0.26)	-0.55 (0.00)	-0.08 (0.15)	0.55 (0.00)	0.43 (0.00)	0.70 (0.00)		
Sick leave	-0.71 (0.00)	0.11 (0.07)	0.13 (0.02)	0.07 (0.27)	0.54 (0.00)	-0.53 (0.00)	-0.60 (0.00)	0.38 (0.00)	-0.25 (0.00)	-0.29 (0.00)	0.29 (0.00)	-0.22 (0.00)	-0.60 (0.00)	-0.37 (0.00)	0.67 (0.00)	0.52 (0.00)	0.51 (0.00)	0.55 (0.00)	

Correlations. P-values in parentheses (n=290).

Table 8. Individual determinants of the Yes vote (probit estimates)

Explanatory variable (Base category)	(1) <i>Probit (yes=1)</i>	(2) <i>Probit (yes=1)</i>	(3) <i>Probit (yes=1)</i>
Woman (Male)	-0.121*** (0.0095)	-0.0960*** (0.011)	-0.0966*** (0.012)
Age (-)	0.978*** (0.19)	1.006*** (0.32)	1.387*** (0.34)
Age ² (-)	-0.871*** (0.20)	-0.968*** (0.34)	-1.278*** (0.36)
Swedish citizen (Non-Swede)	-0.116*** (0.035)	-0.113*** (0.038)	-0.0753* (0.040)
Foreign parent (No foreign parent)	0.0995*** (0.024)	0.113*** (0.025)	0.137*** (0.024)
Grew up small town (Grew up rural)	0.0265* (0.016)	0.00980 (0.016)	0.0136 (0.017)
Grew up town (Grew up rural)	0.0957*** (0.018)	0.0656*** (0.018)	0.0435*** (0.016)
Grew up city (Grew up rural)	0.118*** (0.024)	0.0511** (0.025)	0.0449** (0.022)
LO (Not union member)		-0.121*** (0.014)	-0.0450*** (0.016)
TCO (Not union member)		-0.0994*** (0.024)	-0.0563** (0.023)
SACO (Not union member)		-0.00126 (0.021)	0.0227 (0.022)
Unemployed (Employed)		-0.0837*** (0.025)	-0.0562** (0.027)
Retired age (Employed)		-0.00693 (0.029)	-0.0249 (0.026)
Retired early (Employed)		-0.126*** (0.032)	-0.0681** (0.035)
Student (Employed)		0.0670*** (0.019)	0.0955*** (0.021)
White-collar (Blue-collar)		0.204*** (0.019)	0.141*** (0.023)
Farmer (Blue-collar)		-0.0441 (0.061)	-0.0756 (0.071)
Self employed (Blue-collar)		0.106*** (0.028)	0.101*** (0.036)
Entrepreneur (1-9) (Blue-collar)		0.171*** (0.029)	0.100*** (0.037)
Entrepreneur (10+) (Blue-collar)		0.203*** (0.057)	0.222*** (0.060)
Private empl (Municipal empl)		0.0881*** (0.014)	0.0590*** (0.015)
Government empl (Municipal empl)		0.0426** (0.019)	0.0374* (0.020)
Left wing (Not left or right)			-0.0748*** (0.015)
Right wing (Not left or right)			0.223*** (0.012)
Leave EU (Stay in EU)			-0.526*** (0.0098)
Obs	9603	8631	8452
Pseudo R ²	0.02	0.07	0.26

Probit estimates (marginal effects, evaluated at sample mean, shown). The dependent variable takes the value 1 if yes. The following groups are used as base categories: Male, Non-Swedish citizen, No foreign parent, Grew up rural, Not member of trade union, Employed, Blue-collar, Employed in the municipal public sector, Neither left nor right wing, Stay in EU. The estimate of "Home-worker" has been suppressed due to the few observations in this group. Robust standard errors (clustered at municipal level). *** p<0.01, ** p<0.05, * p<0.1

Table 9. Municipal level regressions

	(1)	(2)	(3)	(4)	(5)	(6)
	Share Yes (Total trade)	Share Yes (Total trade)	Share Yes (Total trade)	Share Yes (EMU-trade)	Share Yes (EMU-trade)	Share Yes (EMU-trade)
Trade Exposure	-0.383*** (0.12)			-0.940*** (0.34)		
Export Exposure		-1.046*** (0.25)			-2.080*** (0.52)	
Import Exposure			-0.328* (0.18)			-0.693 (0.62)
Difference in empl patterns	-4.204* (2.47)	-3.753 (2.42)	-4.466* (2.51)	-3.897 (2.48)	-3.731 (2.44)	-4.293* (2.51)
Income per cap (×100)	0.336 (0.20)	0.403** (0.19)	0.259 (0.22)	0.322 (0.20)	0.387** (0.19)	0.236 (0.21)
University 3yrs	2.742** (1.09)	2.578** (1.05)	2.980*** (1.13)	2.832** (1.09)	2.631** (1.05)	3.089*** (1.13)
Public employ	-0.687*** (0.24)	-0.832*** (0.27)	-0.563** (0.24)	-0.741*** (0.27)	-0.753*** (0.26)	-0.602** (0.27)
Population	0.0904*** (0.023)	0.0832*** (0.021)	0.0956*** (0.025)	0.0872*** (0.023)	0.0852*** (0.022)	0.0936*** (0.024)
Pop. dens (×10 000)	-0.264 (0.20)	-0.389* (0.20)	-0.188 (0.22)	-0.308 (0.20)	-0.304 (0.19)	-0.235 (0.23)
Welfare	-2.267** (0.86)	-2.055** (0.85)	-2.305** (0.89)	-2.059** (0.86)	-2.016** (0.85)	-2.161** (0.87)
Foreign born	3.247*** (0.44)	3.374*** (0.44)	3.138*** (0.47)	3.305*** (0.45)	3.276*** (0.43)	3.190*** (0.48)
Age 0-10	2.114 (2.20)	1.814 (2.10)	2.348 (2.26)	2.066 (2.19)	1.624 (2.15)	2.425 (2.25)
Age 18-30	-4.219*** (1.13)	-4.070*** (1.08)	-4.399*** (1.18)	-4.271*** (1.12)	-4.259*** (1.11)	-4.418*** (1.16)
Age 65-74	4.997** (2.31)	4.849** (2.27)	4.891** (2.35)	5.131** (2.34)	5.175** (2.32)	4.837** (2.37)
Age 75+	-2.653* (1.34)	-2.390* (1.36)	-2.659* (1.35)	-2.558* (1.36)	-2.865** (1.37)	-2.413* (1.38)
Non-empl 20-64	1.398 (1.15)	1.336 (1.12)	1.445 (1.17)	1.337 (1.14)	1.435 (1.13)	1.377 (1.15)
Unemployment	-0.0246* (0.014)	-0.0252* (0.014)	-0.0232 (0.014)	-0.0234* (0.014)	-0.0245* (0.014)	-0.0222 (0.014)
Sick leave (×10)	-0.106*** (0.037)	-0.105*** (0.037)	-0.109*** (0.038)	-0.107*** (0.038)	-0.110*** (0.037)	-0.109*** (0.038)
Obs	290	290	290	290	290	290
R ²	0.89	0.89	0.89	0.89	0.89	0.88

The dependent variable is $\ln[\text{yes}/(1-\text{yes})]$. All regressions include 8 unreported regional dummies. Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 10. Combining individual and municipal data (probit)

	(1) <i>Probit</i> (yes=1) Comparison	(2) <i>Probit</i> (yes=1) Municipal dummies	(3) <i>Probit</i> (yes=1) Diff empl and trade expose	(4) <i>Probit</i> (yes=1) Diff empl and export expose	(5) <i>Probit</i> (yes=1) Diff empl and import expose
Difference in empl patterns			-1.943*** (0.751)	-1.963*** (0.732)	-1.892** (0.771)
Trade Exposure			-0.327 (0.223)		
Export Exposure				-0.764** (0.392)	
Import Exposure					-0.450 (0.474)
LO	-0.0450*** (0.016)	-0.0421** (0.018)	-0.0433** (0.017)	-0.0429** (0.017)	-0.0439*** (0.017)
TCO	-0.0563** (0.023)	-0.0520** (0.023)	-0.0558** (0.023)	-0.0554** (0.023)	-0.0563** (0.023)
SACO	0.0227 (0.022)	0.0206 (0.022)	0.0212 (0.022)	0.0209 (0.022)	0.0216 (0.022)
Unemployed	-0.0562** (0.027)	-0.0609** (0.026)	-0.0565** (0.026)	-0.0563** (0.026)	-0.0567** (0.026)
Retired age	-0.0249 (0.026)	-0.0300 (0.026)	-0.0282 (0.026)	-0.0280 (0.026)	-0.0283 (0.026)
Retired early	-0.0681** (0.035)	-0.0705** (0.035)	-0.0683** (0.035)	-0.0687** (0.035)	-0.0681* (0.035)
Student	0.0955*** (0.021)	0.0937*** (0.022)	0.0956*** (0.021)	0.0954*** (0.021)	0.0959*** (0.021)
White-collar	0.141*** (0.023)	0.130*** (0.021)	0.136*** (0.021)	0.136*** (0.021)	0.137*** (0.021)
Farmer	-0.0756 (0.071)	-0.0861 (0.070)	-0.0674 (0.071)	-0.0681 (0.071)	-0.0677 (0.071)
Self-employed	0.101*** (0.036)	0.0964*** (0.035)	0.101*** (0.035)	0.100*** (0.035)	0.102*** (0.035)
Entrepreneur (1-9)	0.100*** (0.037)	0.105*** (0.038)	0.0992*** (0.037)	0.0985*** (0.037)	0.100*** (0.037)
Entrepreneur (10+)	0.222*** (0.060)	0.219*** (0.063)	0.224*** (0.060)	0.224*** (0.060)	0.223*** (0.060)
Private empl	0.0590*** (0.015)	0.0516*** (0.015)	0.0564*** (0.015)	0.0562*** (0.015)	0.0567*** (0.015)
Government empl	0.0374* (0.020)	0.0367* (0.019)	0.0362* (0.019)	0.0363* (0.019)	0.0366* (0.019)
Individ. controls	Yes	Yes	Yes	Yes	Yes
Attitudes incl	Yes	Yes	Yes	Yes	Yes
Obs	8452	8452	8452	8452	8452
Pseudo R ²	0.26	0.28	0.26	0.26	0.26

Probit estimates (marginal effects, evaluated at sample mean, shown). The dependent variable takes the value 1 if yes. Column (1) is included for comparison. Column (2) includes a set of 82 municipal dummies. Individual controls include Woman, Age, Age², Swedish citizen, Foreign parent, Grew up small town, Grew up town, Grew up city. Attitudes include Left wing, Right wing, Leave EU. The following groups are used as base categories: Male, Non-Swedish citizen, No foreign parent, Grew up rural, Not member of trade union, Employed, Blue-collar, Employed in the municipal public sector, Neither left nor right wing, Stay in EU. The estimate of "Homeworker" has been suppressed due to the few observations in this group. Robust standard errors (clustered at municipal level). *** p<0.01, ** p<0.05, * p<0.1

Table 11. Interactions between individual and municipal characteristics (probit)

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Probit</i>	<i>Probit</i>	<i>Probit</i>	<i>Probit</i>	<i>Probit</i>	<i>Probit</i>
	(yes=1)	(yes=1)	(yes=1)	(yes=1)	(yes=1)	(yes=1)
Private empl ×	-3.632***	-2.382*			-9.417***	-5.674*
Difference in empl	(1.19)	(1.30)			(3.02)	(3.34)
Government empl ×	-0.318	-0.451			-1.178	-0.969
Difference in empl	(1.64)	(1.74)			(4.13)	(4.45)
Entrepreneur (10+) ×	-5.032	-2.666			-13.16	-7.541
Difference in empl	(7.22)	(8.55)			(18.1)	(22.0)
Entrepreneur (1-9) ×	4.083	3.701			9.846	9.606
Difference in empl	(2.92)	(2.93)			(7.46)	(7.59)
Self employed ×	0.732	-0.319			1.633	-1.283
Difference in empl	(2.55)	(2.64)			(6.43)	(6.74)
White collar ×	-1.980	-2.268			-5.284	-6.231
Difference in empl	(1.38)	(1.53)			(3.50)	(3.91)
LO ×	-0.997	-2.307			-2.755	-6.138
Difference in empl	(1.48)	(1.68)			(3.76)	(4.30)
TCO ×	0.917	0.0385			2.452	0.0326
Difference in empl	(1.60)	(1.77)			(4.03)	(4.52)
SACO ×	-2.962*	-4.684**			-7.294*	-11.71**
Difference in empl	(1.69)	(1.85)			(4.25)	(4.73)
Unemployed ×	-1.444	-1.430			-3.751	-3.916
Difference in empl	(2.60)	(2.72)			(6.57)	(6.97)
Student ×	-2.620	-3.242			-7.565	-8.910
Difference in empl	(1.93)	(2.18)			(4.87)	(5.59)
Private empl ×			0.404	3.040*	-0.0940	2.794
Export exposure			(1.57)	(1.76)	(1.59)	(1.77)
Government ×			-1.558	1.386	-1.920	1.131
Export exposure			(2.39)	(2.64)	(2.40)	(2.66)
Entrepreneur (10+) ×			-3.222	-8.305	-2.939	-8.420
Export exposure			(7.99)	(8.31)	(7.87)	(8.28)
Entrepreneur (1-9) ×			-4.000	-3.139	-2.912	-1.970
Export exposure			(4.89)	(5.03)	(4.93)	(5.07)
Self employed ×			-4.058	-8.086*	-3.893	-8.271*
Export exposure			(4.07)	(4.50)	(4.08)	(4.51)
White-collar ×			-1.527	-0.997	-1.554	-1.179
Export exposure			(1.90)	(2.13)	(1.91)	(2.14)
LO ×			-1.984	-2.407	-2.136	-2.738
Export exposure			(1.91)	(2.19)	(1.92)	(2.20)
TCO ×			0.511	-1.131	0.546	-1.208
Export exposure			(2.17)	(2.40)	(2.18)	(2.40)
SACO ×			1.257	1.285	0.954	0.893
Export exposure			(2.59)	(2.83)	(2.60)	(2.85)
Unemployed ×			-5.957*	-8.676**	-6.189**	-8.837**
Export exposure			(3.08)	(3.47)	(3.09)	(3.48)
Student ×			-4.324	-2.800	-4.799*	-3.313
Export exposure			(2.63)	(3.13)	(2.66)	(3.18)
Attitudes	No	Yes	No	Yes	No	Yes
Ind cont	Yes	Yes	Yes	Yes	Yes	Yes
Muni dum	Yes	Yes	Yes	Yes	Yes	Yes
Obs	8631	8452	8631	8452	8631	8452
Pseudo R ²	.10	.28	.10	.28	.10	.28

Probit estimates (marginal effects, evaluated at sample mean, shown). The dependent variable takes the value 1 if yes. Regressions include municipal dummies. In addition to the interacted variables, individual controls include Woman, Age, Age², Swedish citizen, Foreign parent, Grew up small town, Grew up town, Grew up city. Attitudes include Left wing, Right wing, Leave EU. The following groups are used as base categories: Male, Non-Swedish citizen, No foreign parent, Grew up rural, Not member of trade union, Employed, Blue-collar, Employed in the municipal public sector, Neither left nor right wing, Stay in EU. The estimates of “Homeworker”-interactions have been suppressed due to the few observations in this group, as are interactions for the retired (early and age) and farmers. Robust standard errors (clustered at municipal level). *** p<0.01, ** p<0.05, * p<0.1

Table 12a. What motives were important for different groups of voters?

Motive	(1) <i>The Interest Rate</i>	(2)	(3) <i>The Welfare State</i>	(4)	(5) <i>The Swedish Economy</i>	(6)
Yes		-0.190*** (0.029)		-0.061*** (0.017)		-0.005 (0.021)
Export exposure	0.453** (0.195)	0.154 (0.189)	0.011 (0.116)	-0.103 (0.131)	-0.116 (0.110)	-0.079 (0.133)
Export exposure × Yes		0.248 (0.349)		0.189 (0.167)		-0.029 (0.189)
Difference in empl patterns	0.681** (0.294)	0.342 (0.388)	-0.636*** (0.231)	-1.232*** (0.304)	-0.712** (0.353)	-0.675 (0.444)
Diff empl patterns × Yes		-0.369 (0.813)		1.026*** (0.347)		-0.004 (0.427)
Private empl	0.009 (0.007)	0.042*** (0.009)	-0.001 (0.005)	0.008 (0.007)	0.012 (0.008)	0.004 (0.009)
Private empl × Yes		-0.051*** (0.015)		-0.015 (0.010)		0.016 (0.012)
Government empl	0.001 (0.011)	0.018 (0.014)	-0.000 (0.006)	0.002 (0.013)	0.003 (0.009)	-0.004 (0.013)
Government empl × Yes		-0.021 (0.025)		-0.003 (0.020)		0.013 (0.014)
Self-employed	-0.032 (0.021)	0.036 (0.030)	-0.003 (0.014)	-0.007 (0.016)	-0.005 (0.015)	-0.036* (0.019)
Self-employed × Yes		-0.116*** (0.036)		0.015 (0.021)		0.058** (0.027)
Entrepreneur (1-9)	-0.059*** (0.020)	0.007 (0.024)	-0.017 (0.013)	-0.040* (0.022)	0.018 (0.012)	-0.013 (0.019)
Entrepreneur (1-9) × Yes		-0.104*** (0.039)		0.044 (0.028)		0.055)* (0.028)
Entrepreneur (10+)	-0.082** (0.035)	-0.087* (0.052)	0.042 (0.032)	0.011 (0.060)	0.020 (0.036)	0.027 (0.066)
Entrepreneur (10+) × Yes		0.037 (0.076)		0.061 (0.069)		-0.009 (0.067)
White-collar	-0.027*** (0.008)	0.043*** (0.008)	-0.004 (0.007)	0.000 (0.010)	0.028*** (0.006)	0.023** (0.009)
White-collar × Yes		-0.095*** (0.014)		0.005 (0.012)		0.011 (0.010)
LO	0.014* (0.008)	-0.003 (0.012)	-0.018** (0.007)	-0.015 (0.010)	-0.007 (0.007)	-0.004 (0.011)
LO × Yes		0.026 (0.017)		-0.006 (0.015)		-0.008 (0.019)
TCO	0.031*** (0.010)	0.007 (0.013)	0.005 (0.007)	0.010 (0.011)	-0.010 (0.010)	-0.014 (0.018)
TCO × Yes		0.012 (0.016)		-0.014 (0.014)		0.009 (0.020)
SACO	0.001 (0.011)	0.042** (0.016)	-0.005 (0.008)	0.026** (0.012)	0.001 (0.009)	-0.008 (0.019)
SACO × Yes		-0.066*** (0.020)		-0.051*** (0.015)		0.015 (0.023)
Unemployed	0.014 (0.013)	-0.023 (0.015)	-0.018 (0.010)*	-0.031** (0.013)	-0.026 (0.011)**	-0.029 (0.012)**
Unemployed × Yes		0.058** (0.025)		0.030 (0.031)		0.009 (0.024)
Student	-0.014 (0.015)	0.025 (0.016)	0.009 (0.007)	0.005 (0.009)	-0.006 (0.010)	-0.016 (0.011)
Student × Yes		-0.065*** (0.016)		0.014 (0.013)		0.023 (0.016)
Attitudes included	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Obs	7272	7272	7272	7272	7272	7272
R ²	0.10	0.27	0.04	0.05	0.07	0.07

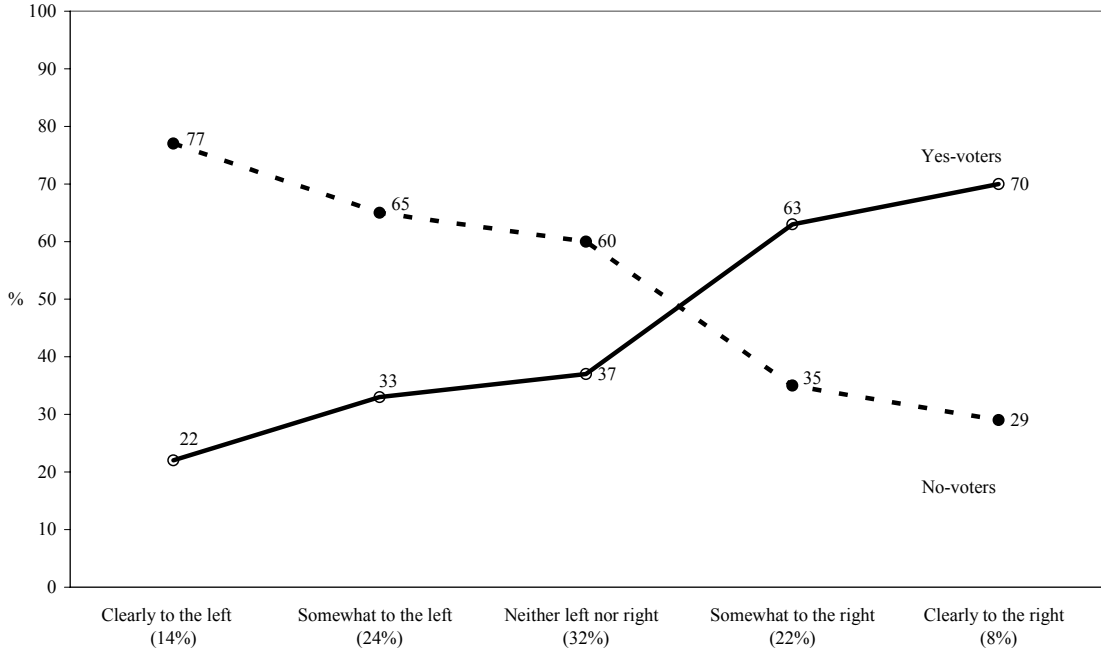
OLS-regressions. The dependent variable is the answer to the weight placed by the respondent on the respective motivational questions, normalized by the average of the answer to all motivational questions. Individual controls include Woman, Age, Age², Swedish citizen, Foreign parent, Grew up small town, Grew up town, Grew up city. Attitudes include Left wing, Right wing, Leave EU. The direct and interaction effects for farmers, retired (early and age) and home-workers have been suppressed to save space. The following groups are used as base categories: Male, Non-Swedish citizen, No foreign parent, Grew up rural, Not member of trade union, Employed, Blue-collar, Employed in the municipal public sector, Neither left nor right wing, Stay in EU. Robust standard errors (clustered at municipal level). *** p<0.01, ** p<0.05, * p<0.1

Table 12b. What motives were important for different groups of voters?

Motive	(1) <i>Private economy</i>	(2)	(3) <i>National independence</i>	(4)	(5) <i>Influence the EU</i>	(6)	(7) <i>Gender equality</i>	(8)
Yes		-0.011 (0.018)		-0.190*** (0.020)		0.240*** (0.030)		-0.044* (0.022)
Export exposure	0.455*** (0.143)	0.544*** (0.179)	0.300** (0.132)	-0.090 (0.141)	-0.528** (0.227)	-0.202 (0.261)	0.219 (0.142)	0.078 (0.189)
Export exposure × Yes		-0.160 (0.191)		0.493** (0.241)		-0.384 (0.346)		0.299 (0.199)
Difference in empl patterns	0.491 (0.384)	0.736 (0.490)	1.103*** (0.309)	0.707** (0.303)	-0.827* (0.449)	-0.313 (0.423)	0.882** (0.361)	0.708 (0.570)
Diff empl patterns × Yes		-0.410 (0.454)		-0.007 (0.446)		-0.191 (0.659)		0.280 (0.559)
Private empl	0.002 (0.006)	-0.001 (0.007)	-0.009 (0.009)	0.016* (0.009)	0.007 (0.009)	-0.024** (0.010)	-0.021*** (0.006)	-0.028*** (0.009)
Private empl × Yes		0.004 (0.013)		-0.032*** (0.011)		0.047*** (0.015)		0.019 (0.012)
Government Emp	-0.005 (0.010)	-0.014 (0.014)	-0.014 (0.009)	0.004 (0.014)	0.020* (0.010)	0.016 (0.014)	-0.018* (0.009)	-0.026* (0.015)
Government Emp × Yes		0.014 (0.018)		-0.021 (0.020)		-0.002 (0.024)		0.020 (0.018)
Self-employed	-0.060*** (0.015)	-0.052** (0.020)	-0.028 (0.022)	0.002 (0.034)	0.013 (0.016)	-0.014 (0.024)	-0.018 (0.016)	0.001 (0.023)
Self-employed × Yes		-0.006 (0.026)		-0.046 (0.040)		0.025 (0.032)		-0.033 (0.033)
Entrepreneur (1-9)	-0.037*** (0.014)	-0.073*** (0.023)	-0.031 (0.020)	0.010 (0.021)	0.017 (0.017)	0.047 (0.029)	0.012 (0.014)	0.006 (0.026)
Entrepreneur (1-9) × Yes		0.074** (0.033)		-0.062** (0.028)		-0.077** (0.034)		0.007 (0.036)
Entrepreneur (10+)	-0.093*** (0.030)	-0.084 (0.058)	-0.092** (0.039)	-0.036 (0.065)	0.092** (0.037)	0.075 (0.089)	-0.039 (0.027)	-0.073 (0.045)
Entrepreneur (10+) × Yes		-0.000 (0.072)		-0.063 (0.086)		-0.028 (0.106)		0.055 (0.069)
White-collar	-0.062*** (0.008)	-0.081*** (0.011)	-0.031*** (0.009)	0.019 (0.013)	0.056*** (0.010)	0.026* (0.013)	-0.035*** (0.007)	-0.031** (0.012)
White-collar × Yes		0.043*** (0.015)		-0.062*** (0.021)		0.008 (0.016)		-0.006 (0.020)
LO	0.028*** (0.009)	0.022* (0.011)	-0.003 (0.009)	-0.025* (0.013)	-0.009 (0.009)	0.019 (0.012)	0.013 (0.008)	0.002 (0.011)
LO × Yes		0.013 (0.016)		0.035 (0.021)		-0.054*** (0.019)		0.029 (0.018)
TCO	0.010 (0.009)	-0.003 (0.015)	0.026** (0.010)	-0.001 (0.015)	-0.015 (0.010)	0.006 (0.013)	0.010 (0.008)	-0.002 (0.015)
TCO × Yes		0.028 (0.023)		0.024 (0.016)		-0.014 (0.019)		0.023 (0.020)
SACO	-0.040*** (0.009)	-0.063*** (0.016)	-0.003 (0.011)	-0.000 (0.018)	0.039*** (0.010)	0.024 (0.016)	-0.020 (0.009)**	-0.006 (0.020)
SACO × Yes		0.039 (0.025)		-0.003 (0.020)		0.023 (0.025)		-0.023 (0.028)
Unemployed	0.005 (0.016)	0.021 (0.018)	0.016 (0.014)	-0.006 (0.014)	-0.007 (0.014)	0.018 (0.017)	0.035 (0.014)**	0.039*** (0.014)
Unemployed × Yes		-0.043* (0.024)		0.023 (0.026)		-0.029 (0.026)		-0.015 (0.031)
Student	-0.055*** (0.009)	-0.073*** (0.013)	-0.020* (0.011)	0.030** (0.012)	0.055*** (0.012)	0.048*** (0.015)	-0.011 (0.015)	-0.002 (0.017)
Student × Yes		0.048*** (0.017)		-0.090*** (0.023)		-0.016 (0.020)		-0.019 (0.021)
Attitudes incl	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual contr	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	7272	7272	7272	7272	7272	7272	7272	7272
R ²	0.05	0.06	0.08	0.22	0.15	0.26	0.09	0.10

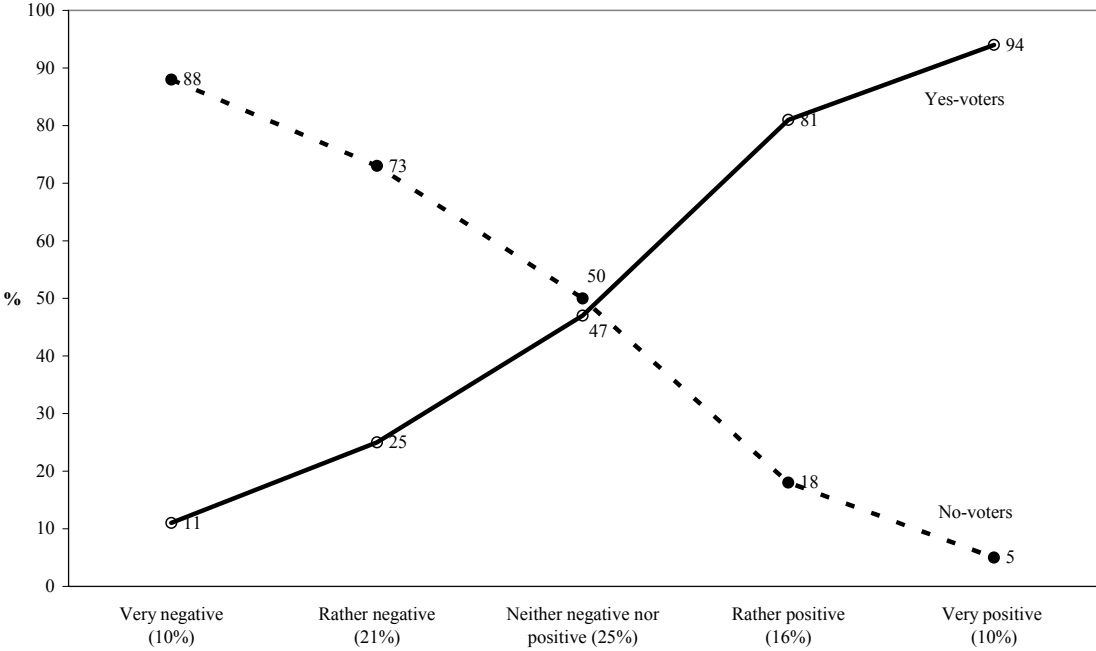
OLS-regressions. The dependent variable is the answer to the weight placed by the respondent on the respective motivational questions, normalized by the average of the answer to all motivational questions. Individual controls include Woman, Age, Age², Swedish citizen, Foreign parent, Grew up small town, Grew up town, Grew up city. Attitudes include Left wing, Right wing, Leave EU. The direct and interaction effects for farmers, retired (early and age) and home-workers are suppressed to save space. The following groups are used as base categories: Male, Non-Swedish citizen, No foreign parent, Grew up rural, Not member of trade union, Employed, Blue-collar, Employed in the municipal public sector, Neither left nor right wing, Stay in EU. Robust standard errors (clustered at municipal level). *** p<0.01, ** p<0.05, * p<0.1

Chart 1. Yes and No to the euro and left/right political view of the voters. Percentage.



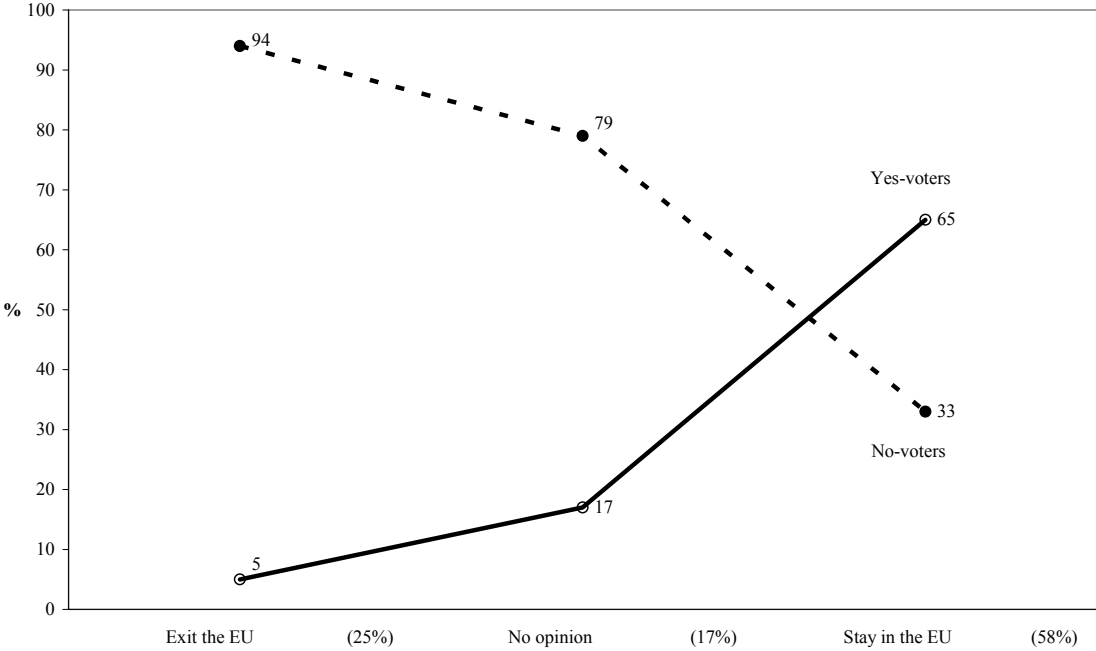
Source: Holmberg (2003).

Chart 2. Yes and No to the euro and attitudes towards a United States of Europe. Percentage.



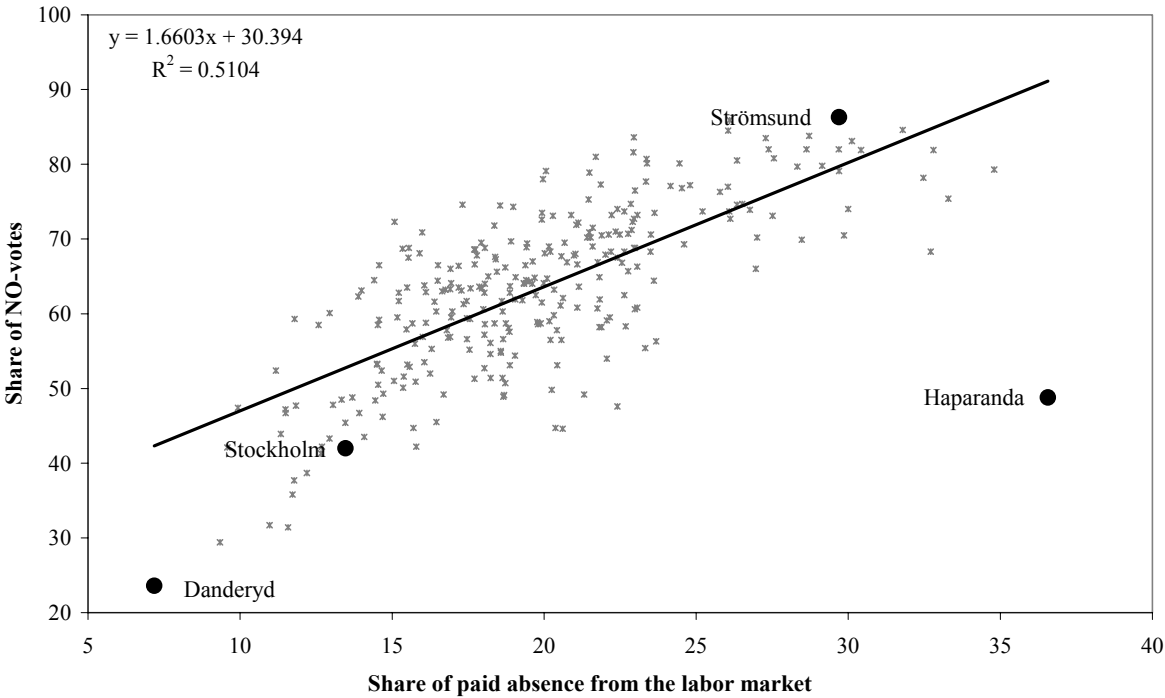
Source: Holmberg (2003).

Chart 3. Yes and No to the euro and attitudes towards Swedish EU-membership. Percentage.



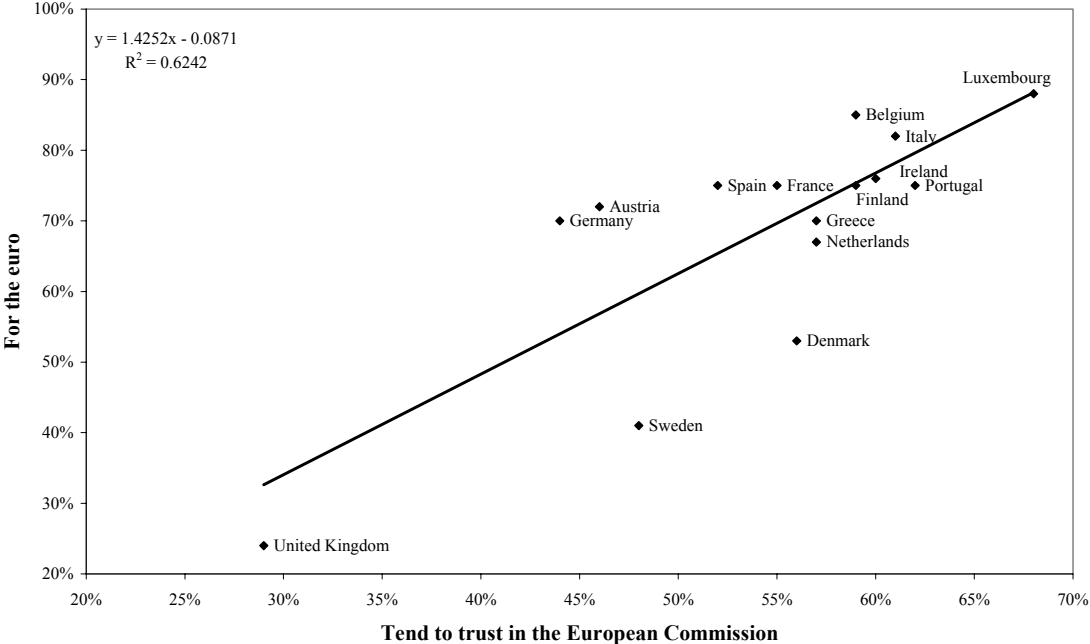
Source: Holmberg (2003).

Chart 4. Scatter diagram of share of No-votes and paid absence from the labour market.



Source: Data supplied by Jan Edling, LO, Stockholm.

Chart 5. "For the euro" and trust in the European Commission. Spring 2003.



Source: Eurobarometer.