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ABSTRACT

Attitudes Towards Immigration: Does Economic Self-Interest Matter?*

In this paper, we re-examine the role of economic self-interest in shaping people's attitudes towards immigration, using data from the European Social Survey 2002/2003. Compared to the existing literature, there are two main contributions of the present paper. First, we develop a more powerful test of the hypothesis that a positive relationship between education and attitudes towards immigration reflects economic self-interest in the labour market. Second, we develop an alternative and more direct test of whether economic self-interest matters for people's attitudes towards immigration. We find that while the "original" relationship between education and attitudes found in the literature is unlikely to reflect economic self-interest, there is considerable evidence of economic self-interest when using the more direct test.

JEL Classification: F1, F22, J61

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1 Introduction

Are people's attitudes towards immigration determined by economic self-interest? This view has been advanced and backed empirically in previous studies, see, *e.g.*, Scheve and Slaughter (2001) and Mayda (2005). These studies have found that more education is strongly related with a more positive attitude towards immigration. This relationship is interpreted as supporting the hypothesis that attitudes are – at least in part – determined by economic self-interest, since the factor-proportions analysis model[1] suggests that, in particular, less educated natives will suffer from competition with immigrants in the labour market.

Recent studies have questioned this interpretation. In an analysis applying data on attitudes in the UK, Dustmann and Preston (2004a) find that the greater hostility towards further immigration among lower educated workers is mainly a result of racial concerns, whereas Hainmueller and Hiscox (2005), using European data, find that the relationship between education and attitudes has very little (if anything) to do with fears of labour market competition.

This paper has two main contributions. First, we develop a more powerful test of the hypothesis that the positive relationship between education and attitudes towards immigration reflects economic self-interest in the labour market, utilizing the detailed information about attitudes towards different types of immigration in the European Social Survey (ESS) 2002/2003. Second, we develop an alternative and more direct test of whether economic

[1] In the following we use the terminology that the "factor-proportions analysis model" is a model where relative factor prices depend on relative factor supplies.

self-interest matters for people's attitudes towards immigration exploiting the unique information in ESS 2002/3 about people's perceptions of the economic consequences of immigration. We find that while the "original" relationship between education and attitudes is unlikely to reflect economic self-interest, there is considerable evidence of economic self-interest when using the more direct test.

First, if the relationship between education and attitudes reflects economic self-interest, then – according to the factor-proportions analysis model – educated natives should be relatively more positive towards low-skilled immigration *relative to* high-skilled immigration than less educated natives, and vice versa. Using data from the EU-15 countries and Norway, we find a strong positive relationship between education and *general* attitudes towards immigration like in previous studies. However, when considering attitudes towards different types of immigration, we do not find that education is positively related with a relatively more positive attitude towards low-skilled immigration. This leads us to reject the hypothesis that the positive relationship between education and attitudes reflects economic self-interest in the labour market.

Second, both the original and the more powerful test implicitly assume that people's perceptions of the economic consequences of immigration match those of the factor-proportions analysis model. As a consequence, they actually test a composite hypothesis of whether people believe in a specific economic model *and* have attitudes consistent with economic self-interest. However, as we show in this paper, people do in fact have very different perceptions of the economic consequences of immigration, and therefore testing

this composite hypothesis may not reveal much about the importance of economic self-interest. Instead, a more appropriate test should condition on people's perceptions. We develop such a test, using the unique questions in the ESS 2002/3 concerning people's perceptions of the economic consequences of immigration.

As an example, we ask: "Given that an individual perceive immigration to lower wages, does that make him/her more hostile towards immigration *if* he/she is likely to be affected by this?" Taking this approach, we find considerable evidence of economic self-interest playing a role among those who believe that immigration disproportionately hurts the poor, puts public expenditures under pressure, take jobs away, and/or lowers wages, as those most likely to be harmed by these effects are more opposed to immigration.

The rest of the paper is organised as follows. In Section 2, we present a simple model of the economic effects of immigration on different types of natives. In Section 3, we describe the data. Section 4 contains the details and the results of the empirical analysis. Section 5 concludes.

2 Theoretical Framework

It is well known that immigration does not necessarily have an adverse impact on any group in the labour market, see, *e.g.,* Scheve and Slaughter (2001). First, if the skill-composition of immigrants is similar to the skill-composition of natives, immigration simply implies that the size of the economy increases, without any effects on factor payments. Second, even if the skill-composition of immigrants is different from that of natives, factor prices do not necessarily

respond to immigration. This is the case in a standard Heckscher-Ohlin model when the number of traded goods exceeds or equals the number of production factors.

However, the Heckscher-Ohlin model assumes that there is full mobility of production factors across sectors. While this may be a reasonable assumption in the longer run, production factors are not fully mobile in the short run. Therefore, a one sector factor-proportions analysis model – where immigration does influence factor prices – may be better able to capture some of the short run consequences of immigration, see also Scheve and Slaughter (2001).

Assume that there is one final good, Y, and three production factors: unskilled labour, L, skilled labour, S, and capital, K. The effects of immigration on the payments to the three production factors depend on the degree of substitution between the production factors. To simplify, consider a simple CES production function:

$$Y = (L^{\sigma} + K^{\sigma} + S^{\sigma})^{\frac{1}{\sigma}}, \qquad -\infty < \sigma < 1 \tag{1}$$

where the elasticity of substitution between each of the three production factors equals $\frac{1}{1-\sigma}$.

We assume that there is an exogenous supply of the three production factors. Moreover, by assuming full employment of all production factors, and that these are paid the value of their marginal product, we find that:

$$\frac{\partial w_L}{\partial L} < 0, \qquad \frac{\partial w_S}{\partial L} > 0, \qquad \frac{\partial r}{\partial L} > 0 \tag{2}$$

$$\frac{\partial w_L}{\partial S} > 0, \qquad \frac{\partial w_S}{\partial S} < 0, \qquad \frac{\partial r}{\partial S} > \frac{\partial r}{\partial L} \tag{3}$$

where r is the return to capital, w_L is the wage of unskilled labour, and w_S is the wage of skilled labour. We see that an increase in the supply of one production factor decreases the payment to this factor but increases the payments to the other factors. Moreover, we see that an increase in the supply of skilled labour has a bigger positive impact on the payment to capital than an increase in the supply of unskilled labour, assuming that the marginal productivity of skilled labour is higher than that of unskilled labour.

In the empirical part of this paper, we apply data for European countries. It is often argued that, due to minimum wages and other institutions, wages in Europe are rigid and do not adjust to bring the labour market into equilibrium. If we assume that there is a binding minimum wage for unskilled labour, *i.e.*, $w_L = \overline{w}_L$, we find that:

$$\frac{\partial u}{\partial L} > 0, \qquad \frac{\partial w_S}{\partial L} = 0, \qquad \frac{\partial r}{\partial L} = 0 \tag{4}$$

$$\frac{\partial u}{\partial S} < 0, \qquad \frac{\partial w_S}{\partial S} < 0, \qquad \frac{\partial r}{\partial S} > 0 \tag{5}$$

where u is the unemployment rate. In this case, an increase in the supply of unskilled labour does not affect the payments to any of the production factors. The only direct effect on the labour market is an increase in the unemployment rate. As in the case of fully flexible wages, an increase in the supply of skilled labour implies that the wage of skilled labour decreases while the return to capital increases. Moreover, since an increase in the supply of

skilled labour tends to increase the marginal productivity of unskilled labour, the unemployment rate tends to decrease.

In sum, these results imply the following according to the model: Unskilled workers should oppose immigration of unskilled labour but favour immigration of skilled labour. For skilled workers the opposite should hold. Employers should be positive towards immigration of both skilled and unskilled labour, but they should favour skilled labour relative to unskilled labour. Finally, the unemployed should oppose immigration of low-skilled labour, but favour immigration of skilled labour.

How robust are these results with respect to other specifications of the production function? The result that workers should tend to oppose immigration of workers of a similar type holds with any specification of the production function as long as there is diminishing returns to this production factor. The results showing how one production factor is affected by an increase in the supply of another production factor depend on the specific production function and, in particular, the elasticities of substitution between the three production factors. In a recent study by Krusell et al. (2000), it has been found that capital-skill complementarity is an important factor behind the increase in the relative demand for skilled labour in recent decades. However, capital-skill complementarity would only strengthen the result that employers tend to be more positive towards immigration of skilled labour.

3 Data

We use data from the European Social Survey (ESS) 2002/2003 which covers 22 European and associated countries. However, we only use data for the EU-15 and Norway as these countries constitute a relatively homogenous group with respect to income and skill levels. The ESS interviews about 2,000 randomly selected persons aged 15 years or more in each country.[2] The 2002/2003 wave contains a special module with a number of questions about immigration. This module is unique in the sense that it contains questions about attitudes towards different types of immigration as well as the respondent's understanding of the economic implications of immigration. Furthermore, the survey holds information about people's educational background, labour market association and a number of other background characteristics.

Questions have been carefully designed to ensure that they are understood in the same way across countries. This is important because the European countries are very diverse with respect to culture, language, immigration history and immigration laws. For example, the word "immigrant" has been avoided in the questionnaire because this word has different connotations in different countries. Instead, the questionnaire refers to "people who come to live in the country".[3] For more details on the design of the questionnaire, see Card, Dustmann and Preston (2005).

In the empirical analysis below, we will use a number of different vari-

[2] In some of the countries, however, sampling was not completely random, as, *e.g.*, persons in households of different sizes were not given exactly the same chance of selection. We correct for this non-random sampling in the estimations below.

[3] We shall, however, use the word "immigrant" in this paper.

ables capturing different aspects of individual opinions about immigration. The respondents have all been asked separately about their attitude towards immigrants from rich and poor countries within and outside Europe, where the possible answers were: "allow none to come and live here", "allow a few", "allow some", and "allow many". This gives us four attitude variables: AT_{rich_euro}, AT_{poor_euro}, $AT_{rich\_noneuro}$ and $AT_{poor\_noneuro}$. From these, we construct a variable, $AT_{average}$, capturing the overall attitude towards immigration as the simple average of the answers, when these are assigned values between 1 and 4, where the value 1 corresponds to "allow none". Following the literature, we also present results based on a binary response variable, AT_{open}, which we define to take the value 1 if $AT_{average}$ exceeds 2.5 and the value zero otherwise.

Simple descriptive statistics of these six variables are presented in Table 3.1.

[Insert Table 3.1 around here]

The total number of observations for the 16 countries used in the analysis exceeds $30,000$, although the actual number of observations used in the different estimations is somewhat lower due to missing observations for some of the involved variables.

We use several individual characteristics to explain the attitudes towards immigration. Education is in the analysis captured by dummies for three educational levels: *primary* education, *secondary* education and *tertiary* education.

Besides educational background, we also control for a number of other

personal characteristics as listed in Table 3.2. Following the predictions of the theoretical model, capital owners should be in favour of immigration. We thus include dummies for being *self-employed* and being an *employer* with five or more employees, as a broad and a narrow measure, respectively, of being a capital owner. In addition, we include a dummy taking the value 1 if the person (or his or her spouse) is *unemployed*. We also include *age*, *sex*, a dummy for being a first or second generation *immigrant*, and a dummy for living in an *urban* area. Furthermore, there are two indicator variables capturing whether the individual belongs to the political *right* or *left*. In Section 4.3, we also use a dummy, *poor,* taking the value 1 if the household belongs to the poorest 25% in the country; a dummy, *recipient*, for being retired, permanently ill or handicapped, and hence to some degree dependent on (public) transfers; a dummy indicating whether the individual is part of the *workforce*; and a dummy, *difficult_get_job*, taking the value one, if the individual has answered that (s)he finds it difficult or impossible to get a similar or better job with another employer.

[Insert Table 3.2 around here]

Finally, in some of our empirical models below, we also control for the respondent's understanding of the economic implications of immigration. The respondents have been asked to give their opinion on a number of statements such as: "average wages/salaries generally brought down by immigrants" and "immigrants harm economic prospects of the poor more than the rich". The variables defined from these questions are presented in Section 4.3 below.

4 Empirical Analysis

The empirical analysis proceeds in three steps. In Section 4.1, we undertake a simple test of whether people's attitudes towards immigration are consistent with the factor-proportions analysis model focusing on the relationship between education and general attitudes towards immigration. This approach is in line with the existing studies. In Section 4.2, we provide a more powerful test by distinguishing between people's attitudes towards *different* types of immigration. Finally, in Section 4.3, we condition on pepole's understanding of the economic effects of immigration, which provides a more direct test of the importance of economic self-interest.

4.1 General Attitudes Towards Immigration

Existing studies have focused on the relationship between an individual's education and his or her general attitude towards immigration. The strong positive relationship which has been found has been interpreted as evidence in favour of attitudes being a result of economic self-interest, as immigrants are assumed to compete with mainly less educated natives in the labour market, see, *e.g.*, Scheve and Slaughter (2001) and Mayda (2005).

We start by reexamining this general relationship, including the standard controls used in the literature to capture a range of background characteristics of the individual. As opposed to the existing studies, however, we also include variables capturing other aspects of the factor-proportions analysis model.

First, the theoretical model predicts that the return to capital increases

as a result of immigration. We should therefore expect that employers tend to favour immigration, and hence we include controls for being self-employed and an employer with 5 or more employees, respectively. Second, since immigration intensifies competition for the currently unemployed, we should expect these to be relatively more against immigration, and we therefore include a control for unemployment in the household.

The resulting model is similar to those in, *e.g.*, Scheve and Slaughter (2001) and Mayda (2005) and can be specified as follows:

$$AT_{j,i} = \gamma_j edu_i + \alpha_j empl_i + \beta_j X_i + \varepsilon_{j,i} \tag{6}$$

where $AT_{j,i}$ is a response variable that gives individual i's attitude towards immigration, where a higher value indicates a more positive attitude. The subscript j indexes different aspects of people's attitudes towards immigration, represented by different response variables. edu_i is a vector of education dummies for individual i, and $empl_i$ is a vector of employment dummies, including dummies for current unemployment, self-employment and employer status. Finally, X_i is a vector of other background characteristics of individual i, including measures of political orientation, age, sex, geographical location (country dummies and urban/rural dummies), and ethnical background. $\varepsilon_{j,i}$ is a random error, and γ_j, α_j, and β_j are the parameter vectors associated with response variable j.

In the regressions in this first step, we use the two response variables: $AT_{average,i}$ and $AT_{open,i}$, which we defined in Section 3. We interpret these variables as capturing an individual's general attitude towards immigration.

While $AT_{average,i}$ can take on 13 different values between 1 and 4, $AT_{open,i}$ is a binary variable. As a consequence, we use an ordered probit model to estimate (6) when $AT_{average,i}$ is the dependent variable. When $AT_{open,i}$ is used, we use a standard probit model. Observations are weighted by population weights to take account of the fact that small countries are oversampled in the ESS, and by sampling weights to correct for non-random sampling within the individual countries.

Table 4.1 presents the results from two probit and two ordered probit regressions. Like the existing studies, we find that a higher level of education is significantly related with a more positive attitude towards immigration. Note that *secondary* is the omitted educational category. Hence, those having only a primary education are the least positive towards further immigration, whereas people having a tertiary education are the most positive. This relationship is very robust to changes in the specification of the model.[4]

[Insert Table 4.1 around here]

Moreover, we observe that the unemployed seem to oppose immigration relatively more. This is also in accordance with the basic hypothesis. Perhaps more surprisingly, neither the *self-employed* dummy nor the *employer* dummy are significant in the regressions.

[4]For example, we also ran the regressions with each of the four variables used to construct $AT_{average,i}$ without this affecting the results.

4.2 Attitudes Towards Different Types of Immigration

Finding a positive effect of education does not automatically imply that attitudes are driven by economic self-interest. Alternatively, education may be associated with a generally different perception of and, therefore, attitude towards immigration.

If the relationship between education and attitudes is caused by economic self-interest, then education should influence people's attitudes towards different types of immigration. According to the factor-proportions analysis model, natives should oppose immigration of people representing the same production factors as themselves. Thus, a more powerful test of economic self-interest should analyse whether people with higher education are relatively more positive towards low-skilled immigration, and vice versa. Fortunately, the current data set provides an opportunity to perform such a test by exploiting the information in the data set about people's attitudes towards immigration from different types of countries, represented by the variables $AT_{rich\_euro,i}$, $AT_{poor\_euro,i}$, etc. Model (6) can be estimated with each of these variables as the dependent variable, and according to the factor-proportions analysis model, we should expect education to have a more positive impact on attitudes towards immigration from poor countries, *i.e.* $\gamma_{poor\_euro} > \gamma_{rich\_euro}$, assuming that immigration from poor countries is less skill intensive than immigration from rich countries. That immigrants from poor countries are in fact less skilled than immigrants from rich countries has been documented by Hainmueller and Hiscox (2005).

Instead of estimating two separate equations for the variables $AT_{rich\_euro,i}$

and $AT_{poor\_euro,i}$, we estimate the model in a first difference form:

$$\Delta AT_{euro,i} = \Delta\gamma_{euro} \cdot edu_i + \Delta\alpha_{euro} \cdot empl_i + \Delta\beta_{euro} \cdot X_i + \Delta\varepsilon_{euro,i} \qquad (7)$$

where $\Delta AT_{euro,i} = AT_{poor\_euro,i} - AT_{rich\_euro,i}$ and $\Delta\gamma_{euro} = \gamma_{poor\_euro} - \gamma_{rich\_euro}$, etc. The differencing has the advantage that any unobserved individual heterogeneity in the error terms is eliminated, which ensures consistent estimates of the involved parameters. Furthermore, estimation of the differenced equation in (7) allows us to test directly whether $\Delta\gamma_{euro}$ is positive, *i.e.* whether $\gamma_{poor\_euro} > \gamma_{rich\_euro}$.

Table 4.2 presents the results from the estimation of (7) using an ordered probit model. Results from an identical model, based on attitudes towards immigration from rich and poor *non*-European countries, $\Delta AT_{non\_euro,i}$, are also contained in Table 4.2.

[Insert Table 4.2 around here]

We observe that people with a tertiary education are relatively more positive towards immigration from poor countries than people with only a secondary education. Although this is consistent with the factor-proportions analysis model, it is only significant in the regressions for immigrants from European countries. Furthermore, individuals with only a primary education are also relatively more inclined towards immigration from low-income countries than people having a secondary (or tertiary!) education. This result is highly significant in all regressions and goes against the factor-proportions analysis model.

It should be noted that the unemployed tend to favour immigration from rich countries more, which is in accordance with the factor-proportions analysis model. Similarly, the self-employed seem to prefer immigration from richer countries, although only significant in one of the regressions.

In sum, however, the results of this section do not lend much support for the hypothesis that the relationsship between education and general attitudes from Section 4.1 reflects economic self-interest in the labour market. In fact, the finding that the least skilled are relatively more in favour of immigration from poor countries is directly at odds with it. In this respect, it is interesting to note that Dustmann and Preston (2004a) also find that labour market implications of immigration do not seem to play much of a role for the attitudes of less educated individuals towards immigration in the UK.

Now, does this mean that economic self-interest does not matter? Not necessarily. An alternative explanation is that people simply perceive the effects of immigration differently. We consider this possibility in the final step.

4.3 Conditional Attitudes Towards Immigration

The approach taken above implicitly assumes that people perceive the economic consequences of immigration according to a specific version of the factor-proportions analysis model. As a consequence, when testing whether economic self-interest matters for people's attitudes, we are in fact testing a composite hypothesis, namely: i) that people's attitudes towards immigration are determined by economic self-interest; and ii) that people believe in

the implications of the factor-proportions analysis model outlined in Section 2. Thus, when we reject this composite hypothesis, it may just be because people do not (or cannot) analyse the economic consequences of immigration according to the factor-proportions analysis model. As argued in Section 2, the labour market implications of immigration according to the factor-proportions analysis model are not even unambiguous. More importantly, however, people do in fact have very different perceptions of the economic consequences of immigration, as we shall show below.

Furthermore, other economic implications may work in the opposite direction of those stemming from the labour market. As an example, although highly educated should favour low-skilled immigration out of labour market concerns, they may oppose exactly the same type of immigration due to their expected consequences for the public budget – something which in particular may harm those with the highest educations as they pay the majority of taxes. A similar point has been stressed by Dustmann and Preston (2004a) and Facchini and Mayda (2006). Thus, using the level of education may not appropriately identify those exposed to the consequences of immigration.

How should we deal with these problems? First, we exploit the fact that the ESS contains a number of questions about the perceived consequences of immigration. We can use the answers to these questions to condition on people's perceptions of the economic consequences of immigration. More precisely, on the basis of these questions, we construct a number of dummy variables which we interact with relevant characteristics of the individuals. As an example, we interact the answer to the question "Immigrants take more jobs away than they create" with a dummy for unemployment of the respon-

dent (or the spouse), and include the resulting variable in the regression. Hence, instead of asking whether unemployed are more against immigration, we ask whether unemployed are more against immigration – given that they perceive immigration to reduce jobs. If perceptions vary across individuals, this constitutes a more appropriate test of whether economic self-interest matters for people's attitudes towards immigration than the approach taken in the previous sections. Second, by using a range of other background variables than education, we are better able to identify those perceived to be (negatively) affected by immigration.

In the following, we use the answers to five different questions about the perceived consequences of immigration. The questions and the associated distributions of answers are listed in Table 4.3 below.

[Insert Table 4.3 around here]

The Table clearly illustrates that the perceived consequences of immigration differ markedly across individuals. As an example, when asked about whether average wages are generally brought down by immigrants, more than 37% agree while equally many disagree. The answers to the other four questions are almost equally diversified.

In the following, we recode the answers to these questions into five dummy variables, *wages_down*, *bad_for_poor*, *fill_jobs*, *take_jobs_away*, and *take_more_out*, each taking the value 1 if an individual agrees with the statement in question. In Table 4.4, we then provide estimates of the model in (6) using the same variables as in Section 4.1. In addition, in columns 1-10 of Table 4.4, we in turn include the five dummy variables interacted with

relevant background characteristics. Furthermore, the last two columns (11 and 12) provide estimates of the "full" model where all interactions have been included.

In the first two regressions in Table 4.4, we have included the variable *bad_for_poor* interacted with a dummy for being *poor*. The individual variables, *bad_for_poor* and *poor*, are also included separately in the regressions to avoid that the interacted variable simply picks up the effects of one (or both) of these variables. While these variables in themselves turn out to have a negative impact on attitudes towards immigration, the coefficient to the interacted variable is also significantly negative at a 5% level in the ordered probit regression (column 2). Hence, not only do poor people and those who find immigration to be bad for the poor oppose immigration more than others, it also seems to be the case that among those who perceive immigration to be bad for the poor, the poor are relatively more opposed to immigration. These results are preserved in the full model in columns 11-12. We interpret this as evidence in favour of a role for economic self-interest.

The following two regressions include the variable *take_more_out* interacted with *recipient*. Although, the coefficient to the interacted variables are insignificant in these regressions, they both become significantly negative at the 5% level in the full model. This indicates that among those who believe that immigrants take more out than they put in, in terms of taxes and services from the public sector, those who are likely to depend on social benefits are more opposed to immigration. Again, we interpret this as an indication of economic self-interest.

Columns 5 and 6 report the results of the regressions where the variables

wages_down and *workforce* have been included, both separately and interacted. The coefficient to the interacted variable is significantly negative in both regressions (1% and 5% level, respectively) as well as in the full model in columns 11-12. This means that among those who believe that wages are driven down by immigrants, members of the workforce are more negative towards immigration than those outside the workforce. In other words, those who are likely to be hurt by lower wages tend to be against immigration if they believe that immigration drives down wages.

In the following two regressions (columns 7 and 8), the variables *fill_jobs* and *employer* are included as are the interaction of these two variables. In these regressions, the coefficient to the interacted variable is positive, although not significant. Thus, while those who believe immigrants to fill jobs where there are shortages of workers are more positive towards immigration in general, we cannot confirm that among these, employers tend to be more positive. We also ran these regressions using *self-employed* instead of *employer*, but with the same results.

In columns 9 and 10, the variables *take_jobs_away* and *difficult_get_job* are included. The idea is that the latter variable should catch those who would suffer most from a reduction in the available jobs. Another indicator of this could be the currently *unemployed*. Hence, in columns 9 and 10 both of these are interacted with the variable *take_jobs_away*. The coefficients to the interacted variables are significantly negative in both regressions, and even more so in the full model. This strongly indicates that among those who believe that immigrants take jobs away, those who are likely to be hurt by this are more opposed to immigration. Again a clear indication of economic self-

interest playing an important role for people's attitude towards immigration.

In sum, there appears to be significant evidence of economic self-interest playing a role for individual attitudes towards immigration, as all the coefficients to the interacted variables in the full model have the expected sign and only one of them is insignificant.

[Insert Table 4.4 around here]

To sum up, people's beliefs concerning the economic implications of immigration vary considerably, and our results confirm that it is important to condition on these perceptions in order to determine whether economic self-interest plays a role for people's attitudes towards immigration. Doing this, we find evidence of economic self-interest playing a role for those who believe that immigration disproportionately hurts the poor, puts public expenditures under pressure, take jobs away and/or lowers wages, as those most likely to be harmed by these effects are relatively more opposed to immigration.

5 Conclusion

Are people's attitudes towards immigration driven by economic self-interest? Existing studies have disagreed on this. A number of studies have found a very significant (and positive) relationship between an individual's attitude towards immigration and his or her educational background, see, *e.g.*, Scheve and Slaughter (2001) and Mayda (2005). Based on the factor-proportions analysis model, this relationship has been interpreted as supporting the hypothesis that attitudes are – at least in part – determined by economic self-

interest. Recently, however, this interpretation has been questioned by, *e.g.*, Dustmann and Preston (2004a) and Hainmueller and Hiscox (2005).

In this paper, we have re-examined the role of economic self-interest in shaping people's attitudes towards immigration, using data from the European Social Survey 2002/2003. While we – like the existing studies – found a strong positive relationship between education and the general attitude towards immigration, we questioned whether this is a result of economic self-interest.

First, we provided a more powerful test of the importance of economic self-interest in shaping people's attitudes towards immigration. According to the factor-proportions analysis model, we should expect the more educated to be relatively more in favour of less skilled immigration. We do not find that this is the case and therefore reject the hypothesis that the positive relationship between education and attitudes towards immigration is a result of economic self-interest in the labour market.

Second, we argued that an appropriate test of economic self-interest should condition on people's perceptions of the economic consequences of immigration, as these perceptions vary substantially across individuals. Furthermore, by using other background characteristics than education, we should be better able to identify those individuals likely to be affected economically by immigration. Doing this, we found that among those who believe that immigration disproportionately harms the poor, the poor are more opposed to immigration. Among those who believe that immigration lowers wages, those in the workforce are significantly more negative of further immigration. Among those who believe that immigrants take jobs away, those who are un-

employed or who find it difficult to find a new job if losing their current job are more opposed to immigration. Finally, among those who believe immigrants to place a burden on the public budget, those who are likely recipients of social benefits appear to be most against immigration.

In sum, using this more direct test, we find strong evidence of a role for economic self-interest in shaping people's attitudes towards immigration.

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Table 3.1: Attitude variables, summary statistics

Variables	Mean	Min	Max	# obs.
AT_poor_euro	2.53938	1	4	27070
AT_rich_euro	2.57952	1	4	26867
AT_poor_noneuro	2.46677	1	4	26951
AT_rich_noneuro	2.48558	1	4	26840
AT_average	2.52014	1	4	26505
AT_open	0.46089	0	1	26505

Table 3.2: Explanatory variables, summary statistics

Variables	Mean	Min	Max	# obs.
Primary	0.42402	0	1	28081
Secondary	0.38168	0	1	28081
Tertiary	0.19430	0	1	28081
Age	48.85353	15	102	28060
Self-employed	0.09206	0	1	28166
Employer	0.01868	0	1	28166
Unemployed	0.04958	0	1	28237
Sex (male=1)	0.47424	0	1	28199
Immigrant	0.14876	0	1	28213
Urban	0.32849	0	1	28098
Right	0.34459	0	1	24882
Left	0.31975	0	1	24882
Poor	0.24839	0	1	22763
Recipient	0.24799	0	1	28166
Workforce	0.59018	0	1	18166
Difficult_get_job	0.22818	0	1	28237

Table 4.1: General Attitudes Towards Immigration

Model:	oprobit	probit	oprobit	probit
Variables\LHS var:	$AT_{average}$	AT_{open}	$AT_{average}$	AT_{open}
Age	-0.00994	-0.00721	-0.00962	-0.00672
	(-4.53)***	(-2.62)***	(-4.41)***	(-2.45)**
Age^2	0.00003	0.00000	0.00003	-0.00001
	(1.54)	(-0.09)	(1.39)	(-0.29)
Left	0.26899	0.23825	0.26837	0.23695
	(16.40)***	(11.58)***	(16.37)***	(11.52)***
Right	-0.00914	-0.01238	-0.00839	-0.01047
	(-0.54)	(-0.58)	(-0.50)	(-0.49)
Male	0.07926	0.08326	0.08150	0.08668
	(5.86)***	(4.89)***	(6.07)***	(5.13)***
Urban	0.09611	0.11771	0.09578	0.11759
	(6.39)***	(6.20)***	(6.37)***	(6.20)***
Immigrant	0.26069	0.25458	0.26138	0.25514
	(12.91)***	(9.92)***	(12.94)***	(9.95)***
Primary	-0.26031	-0.27045	-0.26037	-0.27123
	(-15.28)***	(-12.70)***	(-15.28)***	(-12.73)***
Tertiary	0.40543	0.42406	0.40626	0.42550
	(21.45)***	(17.79)***	(21.50)***	(17.86)***
Unemployed	-0.13964	-0.13353	-0.14251	-0.13784
	(-5.02)***	(-3.84)***	(-5.14)***	(-3.97)***
Self-employed	0.03616	0.03462		
	(1.53)	(1.16)		
Employer			0.03749	-0.05957
			(0.72)	(-0.91)
Country dummies	Yes	Yes	Yes	Yes
# obs.	23,970	23,970	23,970	23,970
Pseudo R^2	0.039	0.086	0.039	0.086
Log likelihood	-48106.29	-15174.01	-48107.21	-15174.27

Notes:
t-values in parentheses
* Significant at 10% level
** Significant at 5% level
*** Significant at 1% level

Table 4.2: Relative Attitudes Towards Immigration

Model:	oprobit	oprobit	oprobit	oprobit
Variables\LHS var:	ΔAT_{euro}	ΔAT_{euro}	$\Delta AT_{noneuro}$	$\Delta AT_{noneuro}$
Age	-0.00459	-0.00550	-0.01082	-0.01117
	(-1.90)*	(-2.28)**	(-4.41)***	(-4.58)***
Age^2	0.00003	0.00004	0.00010	0.00010
	(1.23)	(1.67)*	(4.07)***	(4.24)***
Left	0.10692	0.10874	0.08108	0.08199
	(5.91)***	(6.02)***	(4.42)***	(4.48)***
Right	-0.07821	-0.08069	-0.12055	-0.12217
	(-4.18)***	(-4.32)***	(-6.35)***	(-6.44)***
Male	-0.15363	-0.16007	-0.13901	-0.14143
	(-10.25)***	(-10.76)***	(-9.15)***	(-9.38)***
Urban	-0.02814	-0.02737	-0.00196	-0.00188
	(-1.69)*	(-1.65)*	(-0.12)	(-0.11)
Immigrant	0.04665	0.04479	0.07516	0.07485
	(2.09)**	(2.01)**	(3.33)***	(3.31)***
Primary	0.09660	0.09691	0.08450	0.08522
	(5.12)***	(5.13)***	(4.42)***	(4.45)***
Tertiary	0.05216	0.04979	0.00157	0.00057
	(2.50)**	(2.39)**	(0.07)	(0.03)
Unemployed	-0.11325	-0.10503	-0.04478	-0.04175
	(-3.66)***	(-3.40)***	(-1.43)	(-1.34)
Self-employed	-0.09455		-0.01729	
	(-3.60)***		(-0.65)	
Employer		-0.05979		0.07909
		(-1.04)		(1.35)
Country dummies	Yes	Yes	Yes	Yes
# obs.	25,057	25,057	25,057	25,057
Pseudo R^2	0.012	0.012	0.014	0.014
Log likelihood	-20945.45	-20951.40	-19990.21	-19989.50

Notes:
t-values in parentheses
* Significant at 10% level
** Significant at 5% level
*** Significant at 1% level

Table 4.3: Perceptions of the Consequenses of Immigration

	Average wages/salaries generally brought down by immigrants?[1]	Immigrants harm economic prospects of the poor more than the rich?[1]	Immigrants help to fill jobs where there are shortages of workers?[1]	Immigrants take jobs away in country?[2]	Taxes and services: immigrants take out more than they put in?[3]
Agree	37.46	49.01	63.81	37.21	49.16
Neutral	23.13	21.95	18.29	34.45	28.46
Disagree	37.42	29.04	17.90	28.33	22.38

Notes:

1: The answers "agree strongly" and "agree" have been pooled into the "Agree" category, the answer "neither" corresponds to the "Neutral" category; while the answers "disagree" and "strongly disagree" have been pooled into the "Disagree" category.

2: The original survey question was "Immigrants take jobs away in country or create new jobs?" with possible answers from 0 to 10. Answers from 0 to 4 are collected in the category "Agree", "Neutral" represents the answer 5, while answers from 6 to 10 are collected in "Disagree".

3: The original survey questions was "Taxes and services:immigrants take out more than they put in or less?" with possible answers from 0 to 10. Answers from 0 to 4 are collected in the category "Agree", "Neutral" represents the answer 5, while answers from 6 to 10 are collected in "Disagree".

Table 4.4: Conditional Attitudes Towards Immigration

	1	2	3	4	5	6	7	8	9	10	11	12
Model:	probit	oprobit	probit	oprobit	probit	oprobit	probit	oprobit	probit	oprobit	probit	oprobit
Variables\LHS var:	AT_{open}	$AT_{average}$	AT_{open}	$AT_{average}$	AT_{open}	$AT_{average}$	AT_{open}	$AT_{average}$	AT_{open}	$AT_{average}$	AT_{open}	$AT_{average}$
Age	-0.00165	-0.00562	-0.00880	-0.01240	-0.00395	-0.00748	-0.00684	-0.01009	-0.00755	-0.01100	0.00123	-0.00579
	(-0.50)	(-2.16)**	(-3.03)***	(-5.43)***	(-1.36)	(-3.27)***	(-2.46)**	(-4.58)***	(-2.64)***	(-4.88)***	(0.34)	(-2.09)**
Age^2	-0.00003	0.00002	0.00002	0.00006	0.00004	0.00001	-0.00001	0.00003	0.00000	0.00004	-0.00008	0.00001
	(-1.02)	-(0.62)	-(0.59)	(2.61)***	(-1.19)	(0.41)	(-0.48)	-1.2800000	(-0.13)	(1.78)*	(-2.03)**	(0.28)
Left	0.22760	0.25752	0.22217	0.25121	0.23318	0.26499	0.23117	0.26239	0.24201	0.27507	0.21960	0.25341
	(9.63)***	(13.86)***	(10.50)***	(15.06)***	(11.00)***	(15.86)***	(11.11)***	(15.88)***	(11.51)***	(16.58)***	(8.85)***	(13.24)***
Right	0.01828	0.01727	0.01954	0.01812	-0.00283	-0.00150	-0.01203	-0.00807	0.01152	0.01249	0.05951	0.05405
	(-1.15)	-(0.90)	(0.90)	(1.06)	(-0.13)	(-0.09)	(-0.56)	(-0.48)	(0.53)	(0.73)	(2.33)**	(2.73)***
Male	0.06361	0.06523	0.09968	0.09583	0.12391	0.10981	0.09347	0.08864	0.08972	0.08719	0.11306	0.10492
	(3.25)***	(4.26)***	(5.66)***	(6.93)***	(6.92)***	(7.82)***	(5.46)***	(6.55)***	(5.14)***	(6.36)***	(5.26)***	(6.35)***
Urban	0.09081	0.08418	0.10045	0.08174	0.13034	0.10545	0.11723	0.09593	0.11437	0.09538	0.09629	0.08594
	(4.21)***	(4.99)***	(5.15)***	(5.35)***	(6.68)***	(6.90)***	(6.10)***	(6.33)***	(5.90)***	(6.27)***	(4.26)***	(4.95)***
Immigrant	0.19344	0.23393	0.20301	0.21316	0.26334	0.26572	0.24055	0.24715	0.20691	0.21890	0.17192	0.20432
	(6.71)***	(10.44)***	(7.70)***	(10.39)***	(9.97)***	(12.92)***	(9.29)***	(12.17)***	(7.88)***	(10.68)***	(5.67)***	(8.81)***
Primary	-0.23124	-0.24244	-0.24940	-0.24361	-0.23179	-0.23129	-0.26140	-0.25370	-0.23573	-0.22461	-0.18382	-0.20096
	(-9.32)***	(-12.36)***	(-11.42)***	(-14.10)***	(-10.52)***	(-13.28)***	(-12.14)***	(-14.80)***	(-10.81)***	(-13.02)***	(-7.04)***	(-9.91)***
Tertiary	0.39020	0.35651	0.02444	0.35877	0.35855	0.34178	0.41170	0.39189	0.36546	0.34764	0.30689	0.27592
	(14.54)***	(16.96)***	(15.42)***	(18.70)***	(14.65)***	(17.79)***	(17.11)***	(20.62)***	(14.99)***	(18.17)***	(10.93)***	(12.75)***
Unemployed	-0.08162	-0.09981	-0.13094	-0.15024	-0.08861	-0.11626	-0.12581	-0.14065	-0.06323	-0.06118	0.04775	0.04327
	(-2.20)**	(-3.44)***	(-3.99)***	(-5.81)***	(-2.65)***	(-4.44)***	(-3.89)***	(-5.48)***	(-1.44)	(-1.77)*	(0.92)	(1.09)
Self-employed	0.08010	0.07344	0.02139	0.02541	0.02143	0.01972			0.01533	0.02325		
	(2.23)**	(2.64)***	(0.69)	(1.05)	(0.68)	(0.81)			(0.49)	(0.95)		
Bad_for_poor	-0.55304	-0.53089									-0.31438	-0.29943
	(-25.20)***	(-30.14)***									(-12.70)***	(-15.30)***
Poor	-0.13795	-0.07497									-0.14940	-0.06663
	(-3.84)***	(-2.63)***									(-3.93)***	(-2.24)**
Bad_for_poor x Poor	-0.03615	-0.08894									-0.02052	-0.09308
	(-0.75)	(-2.37)**									(-0.40)	(-2.36)**
Take_more_out			-0.53048	-0.52889							-0.29675	-0.29035
			(-26.23)***	(-32.69)***							(-12.00)***	(-14.93)***
Recipient			-0.03987	-0.03266							-0.00077	-0.00263
			(-1.08)	(-1.12)							(-0.02)	(-0.07)
Take_more_out x Recipient			-0.02616	-0.02227							-0.10410	-0.08789
			(-0.63)	(-0.69)							(-2.11)**	(-2.32)**
Wages_down					-0.45785	-0.46354					-0.23617	-0.21872
					(-15.92)***	(-20.51)***					(-6.65)***	(-7.97)***
Workforce					0.01794	0.01140					-0.00256	0.00713
					(0.67)	-0.54					(-0.07)	-0.25
Wages_down x workforce					-0.14415	-0.06850					-0.13518	-0.07622
					(-3.91)***	(-2.39)**					(-3.09)***	(-2.27)**
Fill_jobs							0.32983	0.33665			0.21964	0.22099
							(18.08)***	(23.21)***			(9.90)***	(12.87)***
Employer							-0.29035	-0.09897			-0.11705	-0.03948
							(-2.20)**	(-0.97)			(-1.34)	(-0.59)
Fill_jobs x Employer							0.24807	0.11265			0.06293	0.04843
							(1.63)	(0.95)			(1.23)	(1.25)
Take_jobs_away									-0.48281	-0.49945	-0.21295	-0.23825
									(-22.07)***	(-28.76)***	(-7.71)***	(-11.05)***
Difficult_get_job									0.00179	0.00648	-0.00366	0.00599
									(0.07)	(0.31)	(-0.11)	(0.24)
Take_jobs_away x Difficult_get_job									-0.10538	-0.05870	-0.10267	-0.09779
									(-2.54)**	(-1.80)*	(-2.13)**	(-2.64)***
Take_jobs_away x Unemployed									-0.12649	-0.14474	-0.17192	-0.22296
									(1.94)*	(-2.83)***	(-2.22)**	(-3.79)***
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# obs.	18,822	18,822	23,335	23,335	23,222	23,222	23,669	23,669	23,544	23,544	17,916	17,916
Pseudo R^2	0.117	0.054	0.094	0.044	0.115	0.051	0.097	0.045	0.090	0.041	0.143	0.067
Log likelihood	-11510.35	-37245.17	-14655.53	-46663.61	-14244.71	-46008.26	-14810.64	-47189.19	-14842.69	-47169.63	-10642.12	-35066.36

Notes: t-values in parentheses. * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level