

**PREFERENCES FOR IMMIGRATION RESTRICTION
AND OPINIONS ABOUT IMMIGRANTS' ECONOMIC
IMPACTS**

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Preferences for Immigration Restriction and Opinions about Immigrants' Economic Impacts:

Evidence from the European Union before the 2004 expansion

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Abstract:

We investigate the importance of citizens' opinions about economic impacts of immigration in their countries to their preferences for immigration restriction. We focus on personal views regarding how immigrants would affect the national labour market and the domestic public finance. Our analysis of survey data from 7 EU countries during the period 2002-2003 suggests that personal opinions about these issues do not explain individual preferences for immigration restriction. We find somewhat unexpectedly that employers were more likely to prefer immigration restriction than the rest. Those who relied on unemployment benefits were less likely to prefer immigration restriction than the others, although they were more likely to anticipate a negative labour market impact of immigration. The higher the relative income position, the lower the likelihood of preferring immigration restriction, and also the lower the likelihood of thinking that immigrants would negatively affect the national labour market. However, those whose income was relatively high were more likely to expect a negative net fiscal impact of immigration than low-income citizens.

Keywords:

Immigration, citizens' preferences, European Union

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1 Introduction

This paper contributes to the literature on the determinants of individual attitudes toward immigration in the welfare state. Existing studies have asked, using opinion survey data, whether the observed variations in individual preferences for immigration restriction can be explained by economic characteristics of the corresponding respondents. Persons with different economic characteristics would be affected differently by immigrants with certain economic characteristics, for the labor market and/or the public finance need adjust to immigration by affecting economic situations of persons who are already in the country. The literature has been concerned with whether the variations in individual preferences for immigration restriction reflect economically self-interested thinking.

Immigrant workers increase the stock of labor in their destination countries, other things equal. If their labor can substitute for existing labor and does not cost producers more than the ongoing pay, the existing, replaceable workers should like to stop such immigration. However, there are also other production factors, such as capital, that immigrant labor can complement. The owners of such factors should demand immigrant workers. An economically self-interested person's preference for immigration restriction should then be explained by her/his factor endowments.¹ For instance, the cross country stud-

¹The argument here is one of the short run because production factors owned by existing workers are assumed to be fixed. This assumption might well be appropriate for instance for existing senior workers who find it difficult to adjust their labor skills to changing labor market conditions. On the other hand, preferences based on the short-run perspective may be inappropriate if the quality and the quantity of production factors owned by citizens can react to immigration through for example human capital investment. In such a case, even existing workers who can be substituted by immigrants may benefit by changing their labor skills in a longer run, which may in turn cause a gradual increase in the intensity of competition in labor markets that are not directly affected by immigration in the short run. Thus, individual preferences for immigration restriction depend not only on the factors that citizens currently own but also on the factors that they can own in the future. Whether short- or long-run perspective is more important to preferences for immigration restriction than the other is an empirical question. This endogeneity was emphasized by Chiswick (1989). Casarico and Devillanova (2003) and Tamura (2004) theoretically analyzed how it would divide

ies by Mayda (2006: Table 3A, Specification 8) and O'Rourke and Sinnott (2006: Table 4) found that, in developed countries, those whose occupations required high skills were less likely to prefer immigration restriction than those whose occupations required low skills. Since the skill levels of immigrants are generally low relative to those of natives in developed countries, the finding provides some evidence that individual preferences for immigration restriction reflect economic reasoning based on factor endowments.²

If immigrants are on average net users of the welfare system, immigration implies a need for extra revenue, other things equal. In developed countries where taxation is progressive, high-income residents would then have a disproportionately larger share of the increased burden than low-income residents, while persons with very low income may not need to share that burden at all. If the government decides to cut benefits rather than generate extra revenue, the burden-sharing position of high- and low-income residents would change, assuming that government benefits form a larger part of the total income for low- than high-income persons. The argument suggests that individual preferences for restricting immigration depend on whether immigrants are on average thought to contribute to or benefit from government coffers in net terms. However, the magnitude of immigration's net fiscal impact that is felt at the individual level depends on the income level of the resident in question as well as the fiscal adjustment channel.³ Hanson, Scheve and Slaughter's (2005: Table 8) US study and Facchini and Mayda's (2006: Tables 3 and 4) cross country study provide some evidence that high-income residents were more likely to prefer immigra-

heterogeneous citizens by their preferences. See also footnote 12.

²See also Scheve and Slaughter's (2001) US study, Dustmann and Preston's (2004) UK study and Boeri, Hanson and McCormick (2002: Chapters 5 and 13).

³See footnote 18.

tion restriction than low-income residents in states/countries where immigrants were net beneficiaries.

This paper provides additional evidence on whether the variations in individual preferences for immigration restriction reflect economically self-interested thinking. Our contributions to the literature are twofold. First, we find that the variations in personal views about immigrants' overall impacts on the national labor market and the domestic public finance are not able to explain the variations in individual preferences for immigration restriction. Earlier studies found that personal opinions about the labor market impact of immigration influenced individual preferences for immigration restriction, eg, the US studies by Espenshade and Hempstead (1996: Table A8) and Citrin, Green, Muste and Wong (1997: Table 1, Specifications III and V) and the cross country study by Bauer, Lofstrom and Zimmermann (2000: Table 6). Citrin et al. also found that opinions about the net fiscal impact of immigration mattered to preferences for restricting immigration.

However, the results of these single-equation studies might have suffered from an endogeneity problem if personal opinions about immigrants' economic impact are correlated with unobservable characteristics of respondents that may be contained in the error term. For example, some persons would have generally negative attitudes toward foreigners, which would result in a preference for immigration restriction as well as a negative opinion about immigrants' economic impact. In an attempt to deal with this potential problem, some single-equation studies use proxy variables based on responses to questions that are related to, for instance, racism. Having several subjective regressors in an equation may, however, introduce multicollinearity. Hence we take a different approach.

We estimate the reduced forms for the personal opinions and the structural equation for the individual preferences jointly, exploiting the correlations among such omitted unobservable characteristics across the equations that belong to a particular person. We compare the estimates from univariate and multivariate probit models and find that, while both labor market and public finance concerns show both statistically and practically significant contributions to the variations in individual preferences for immigration restriction in the case of univariate probit, the statistical significance disappears in the case of multivariate probit. Our results might suggest that concerns about overall economic effects of immigration were not important factors for EU citizens' preferences for restricting immigration from poorer European countries.

Second, we find somewhat unexpectedly that employers were more likely to prefer immigration restriction than the rest in our sample of 7 EU countries about a year before the May 2004 expansion of the Union.⁴ Existing studies do not distinguish between employers and the others, while employers are often thought to benefit from the availability of immigrant labor. Our finding is counterintuitive at first glance. However, there is some evidence that self-employed immigrants from Eastern Europe had been on the increase since the signing of Europe Agreements between the then EU members and candidate countries in the 1990s. The agreements allowed citizens of the latter to set up their own businesses in the former, encouraging east-west migration via the self-employment route. Our finding might imply that employers were concerned with competition intensified by immigration.

The next section describes the data. Section 3 presents preliminary results

⁴The seven countries are Denmark, Finland, France, Ireland, the Netherlands, Sweden and the United Kingdom. See Subsection 2.2 for the reasons for concentrating on these countries.

from univariate probit estimation. Section 4 describes the trivariate probit model used for the main results presented in Section 5. Section 6 concludes. All the tables referred to in Sections 3 and 5 are attached to the end of the paper.

2 Data

Round 1 of the European Social Survey (ESS hereafter) was conducted during the period 2002-2003. ESS is a biennial survey that covers more than 20 countries in Europe. The target population of each country consists of all persons at the age of 15 or over who reside in the country. The survey consists of core and rotating modules, and one of Round 1's two rotating modules is dedicated to revealing individual opinions about immigration-related issues by using almost 60 questions. This immigration module was framed by giving each respondent the following introduction: "People come to live in [the country where the respondent was questioned] from other countries for different reasons. Some have ancestral ties. Others come to work here, or to join their families. Others come because they're under threat. Here are some questions about this issue."⁵

We concentrate on citizens in the then member countries of the European Union. By restricting the set of observations to these countries, and by focusing on individual preferences with respect to the immigration from poorer countries in Europe,⁶ we implicitly examine the determinants of pre-enlargement EU citi-

⁵By the use of 'live', the permanency of immigrants' stay is deliberately made ambiguous. See Chapter 3 (Part 1) of the ESS Round 1 2002/2003 Technical Report (Edition 2, June 2004) for the aim and outline of the immigration-related questions. We used Edition 5.1 of the data set that was released at <http://ess.nsd.uib.no> on 15 December 2004.

⁶See the following subsection about the main dependent variable, *anti*.

zens' preferences for restricting immigration from the countries that were about to join the Union in May 2004. Unfortunately, due to a lack of data on explanatory variables of interest,⁷ we deal with only a subset of the EU15 countries, ie, Denmark, Finland, France, Ireland, the Netherlands, Sweden and the United Kingdom. In total, we have 13,109 observations in these 7 countries.

2.1 Dependent variables

We have 3 dependent variables of interest. The first one captures each citizen's personal view about immigration's impact on the national labor market. It is based on the responses to the following ESS question:

- Would you say that people who come to live here generally take jobs away from workers in [the country where the respondent was questioned] or help create new jobs?

Each respondent was asked to choose one of 11 categories that were ordered from '0' (= take away) to '10' (= help create). We collapse these to create a binary variable, *labor*, that indicates whether citizen *i* anticipated a negative labor market effect of immigration, ie,⁸

$$labor_i = \begin{cases} 1 & \text{if either '0', '1', '2', '3' or '4' was selected} \\ 0 & \text{otherwise.} \end{cases}$$

Note that this variable does not necessarily capture a citizen's opinion about immigration's effect on some specific labor markets that are relevant to the

⁷See Subsection 2.2 about explanatory variables.

⁸The proportion of missing observations in each country is low: the highest is .063 in Denmark. The reason why we dichotomize this and the following two ordered categorical variables is because we do not have a program that implements trivariate ordered probit at our disposal. See Section 4 about the model.

respondent: the question asks about its overall impact on the national labor market. However, we will later find some sign that implies that *labor* might well capture economic self-interest.

The second dependent variable captures a citizen's view about immigration's net impact on the domestic public finance. It is based on the responses to the following question:

- Most people who come to live here work and pay taxes. They also use health and welfare services. On balance, do you think people who come here take out more than they put in or put in more than they take out?

Each respondent was asked to choose one of 11 categories that were ordered from '0' (= take more out) to '10' (= put more in). We collapse these to create a binary variable, *fiscal*, that indicates whether citizen *i* anticipated a negative net effect of immigration on his/her country's public finance, ie,⁹

$$fiscal_i = \begin{cases} 1 & \text{if either '0','1','2','3' or '4' was selected} \\ 0 & \text{otherwise.} \end{cases}$$

Note that, the same as *labor*, this variable does not necessarily capture a citizen's opinion about immigration's impact on the person through its effect on the domestic public finance. However, we will later find some evidence that *fiscal* might well capture economic self-interest.

One objective of the paper is to examine determinants of *labor* and *fiscal*. However, the paper's main purpose is to investigate how important these personal opinions are to individual preferences for immigration restriction. There-

⁹The proportion of missing observations in each country is low: the highest is .072 in Denmark.

fore, we use these two opinion variables to explain our third dependent variable that indicates whether a respondent had a preference for immigration restriction. We are interested in pre-expansion EU citizens' preferences with respect to immigration from the countries that were about to join the Union in 2004. The variable is hence based on the responses to the following question:¹⁰

- To what extent do you think [the country where the respondent was questioned] should allow people from poorer countries in Europe to come and live here?

Each respondent was asked to choose one of the following 4 ordered categories: 'none', 'a few', 'some' and 'many'. We collapse these to create a binary variable, *anti*, that indicates a preference for immigration restriction, ie,¹¹

$$anti_i = \begin{cases} 1 & \text{if either 'none' or 'a few' was selected} \\ 0 & \text{otherwise.} \end{cases}$$

We should note that the questions on which *labor* and *fiscal* are based did not ask specifically about migrants from poorer European countries. We need bear this in mind in interpreting our results.

2.2 Explanatory variables

Immigration restriction is likely to be preferred by existing workers who expect immigrant workers to affect them adversely in their labor markets. Those

¹⁰This question does not explicitly concentrate on the newly joining countries, but this is the best question for our purpose among the other similar questions about immigration restriction in the survey. The World Bank's World Development Indicators 2003 show that, in 2001, the 7 pre-enlargement EU countries in our sample had both GDP per capita and GNP per capita higher in real terms than the 10 newly joining countries.

¹¹The proportion of missing observations in each country is low: the highest is .047 in Denmark.

workers who can easily be substituted by immigrants might fear an immediate increase in the intensity of labor market competition. The other workers who cannot easily be replaced by immigrants might see potential benefits of immigration if they are complementary to immigrants in production.¹²

Accordingly, the first variable of interest is a continuous measure that approximates the degree of labor market competition between each respondent and immigrants, which we created by using Eurostat Census 2001. Table 2.1 presents the share of foreigners in each industry's total employment in a country, divided by the share of foreigners in that country's total employment.¹³ If a figure exceeds 1, it indicates that the share of foreigners in the corresponding sector's employment is relatively high in the country. Unfortunately, we do not have corresponding figures for Belgium, which is the reason why we drop the Belgian observations from the sample.

Not surprisingly, in all 14 countries, the hotel and restaurant industry used

¹²LaLonde and Topel (1991) found that the impact of immigration on natives' earnings is insignificant in the United States. Altonji and Card (1991) found a significantly negative but small effect of immigration on natives' wages in the country. Borjas, Freeman and Katz (1992: Tables 7.7 and 7.8) found that immigration reduced earnings of unskilled workers relative to skilled workers in the country by increasing the supply of unskilled labor. Friedberg and Hunt (1995) reviewed these and other studies on the labor market impact of immigration in the United States in detail and concluded that it is negative but trivial. See also LaLonde and Topel (1997: 819-827) for another review. The past studies typically examined correlations between native wages and the presence of immigrants by location, eg, US metropolitan areas, and found them negative but weak or insignificant. This might be because of natives' reactions to immigration, eg, moving to another location or industry. Winter-Ebmer and Zweimüller (1996) separated their data by native mobility and found that the growth of foreign workers slowed the growth of wages for unskilled native workers who stayed with the same firm, while the wage growth among those who moved to another firm was not affected in Austria. Borjas (2003) defined labor skill in terms of both education and work experience and made the size of the native workforce in each group stable over time, lessening the complication that arises from natives' reactions to immigration in the labor market. He then found a 10% increase in immigration in a skill group depressed the corresponding wage by 3 to 4 percent in the United States. De New and Zimmermann (1994) found not only a negative wage impact on unskilled natives but also a small positive wage effect on skilled natives in Germany. Gang and Rivera-Batiz (1994) suggest that education, work experience and unskilled labor are complementary inputs. Ottaviano and Peri (2006) show that the positive wage effect is likely to be dominant because immigrants and natives are imperfect substitutes. See also footnote 1.

¹³OECD has produced a similar table in its annual publication, *Trends in International Migration*, but it does not give the figures as we do in Table 2.1. In addition, ours is more disaggregated than OECD's in terms of economic activity. Although we focus on only 7 of these countries, we also present figures for the others to show that the presence of foreign workers depends on both industry and country.

Table 2.1 Extent of non-citizens' presence by industry and country (*isb*)

Country [†]	NACE Rev. 1 major division [‡]																
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q
<i>at</i>	.42	..	.82	1.21	.25	1.53	.91	2.23	.89	.39	1.36	.07	.43	.70	1.09	1.62	3.14
<i>be</i>	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>de</i>	.45	..	..	1.35	..	1.07	.90	3.32	1.00	.40	1.10	.23	.47	.67	.97	1.30	..
<i>dk</i>	1.00	.49	.65	1.12	.23	.46	.86	3.27	.97	.34	1.66	.27	.98	.74	.91	1.00	12.86
<i>es</i>	1.88	.64	.78	.66	.45	1.46	.71	2.06	.66	.35	.87	.19	.50	.52	.87	5.61	..
<i>fi</i>	.35	.42	.19	.93	.19	.72	.97	2.90	.82	.36	1.62	.33	1.57	.57	1.08	..	11.58
<i>fr</i>	.80	..	1.14	1.02	.25	2.51	.90	1.90	.64	.40	1.46	.27	.49	.57	1.05	4.32	9.57
<i>gr</i>	1.21	1.12	.59	1.03	.16	2.86	.53	1.35	.41	.14	.64	.11	.24	.30	.56	7.94	..
<i>ie</i>	.43	1.05	.61	.94	.37	.68	.77	2.14	.76	.78	1.35	.28	.68	1.08	.97	2.16	..
<i>it</i>	1.08	1.04	1.07	1.31	.34	1.50	.67	1.66	.73	.23	.54	.16	.43	.58	1.01	..	..
<i>lu</i>	.44	.00	1.23	.88	.13	1.72	.98	1.74	.62	1.10	1.37	.12	.34	.72	.90	1.94	1.99
<i>nl</i>	.85	.25	1.97	1.22	.29	.51	.89	2.20	.83	.57	1.87	.24	.70	.48	.90	..	..
<i>pt</i>	.44	.43	.89	.60	.65	2.65	.68	1.80	.58	.31	1.38	.29	.49	.81	1.46	1.84	..
<i>se</i>	.40	.21	.51	1.18	.29	.57	.82	2.68	.88	.55	1.28	.38	.95	.96	.91	4.02	..
<i>uk</i>	.34	.40	.75	.78	.57	.56	.88	1.82	1.06	1.12	1.23	.76	1.00	1.23	.97	2.54	..

Source: Eurostat Census 2001, <http://europa.eu.int/comm/eurostat> NB: .. = not available

Each figure is defined as $\left(\frac{\# \text{ non-citizens employed in the industrial group}}{\# \text{ all employed in the industrial group}} \right) / \left(\frac{\# \text{ non-citizens employed in all groups}}{\# \text{ all employed in all groups}} \right)$ in each country.

A figure greater than 1 indicates that the share of non-citizens in the corresponding industrial group's employment is relatively high.

† at = Austria, be = Belgium, de = Germany, dk = Denmark, es = Spain, fi = Finland, fr = France, gr = Greece, ie = Ireland, it = Italy, lu = Luxembourg, nl = Netherlands, pt = Portugal, se = Sweden, uk = United Kingdom

‡ a = agriculture, hunting, forestry; b = fishing; c = mining, quarrying; d = manufacturing; e = electricity, gas, water supply; f = construction; g = wholesale/retail trade, repair of motor vehicles, motorcycles and personal/household goods; h = hotels, restaurants; i = transport, storage, communication; j = financial intermediation; k = real estate/renting/business activities; l = public administration, defence, compulsory social security; m = education; n = health/social work; o = other community/social/personal service activities; p = household activities; q = extraterritorial organisations/bodies

Further details about the categories are in Eurostat, 1996, NACE Rev. 1: Statistical Classification of Economic Activities in the European Community.

many foreign workers (category h). Another industry is of household activities (category p), eg, housemaids. In the other industries, however, we see variations across the countries. We also confirm our expectation that the use of the average skill level of immigrant workers—which tends to be low relative to citizens in these countries—is not suitable for representing labor substitutability. For instance, while the construction sector (category f) hired many foreign workers in more than half the countries, they also seem to have been highly present in the education sector (category m) in Finland and the health and social service sector (category n) in the United Kingdom. The required skills in immigrant-concentrated sectors thus vary considerably.

ESS collected a two-digit NACE Rev.1 code for each respondent, and hence we know to which NACE Rev.1 major group he or she belonged. We assign the relevant figure in Table 2.1 to each ESS respondent.¹⁴ We call this variable *isb*. Unfortunately, a two-digit NACE Rev.1 code is not available for more than 20 percent of respondents in Greece, Italy, Luxembourg and Spain. We drop observations in these countries from the sample, for we do not have sufficient information for imputation.¹⁵ Furthermore, in the remaining 10 countries, we removed observations that belonged to extraterritorial organizations (category q). The sector should naturally employ many foreign workers, and Table 2.1 confirms that in 5 countries. The exclusion of the observations should remove outliers, for the proportion of citizens who belonged to such an organization in

¹⁴This variable is similar to what Mayda (2006: Table 3A, Specifications 11 and 12) constructed at the occupation level. The assumption is that a high ratio indicates that immigrants can easily substitute for natives in that industry in the country. However, it might well be the case that a high ratio is a technological consequence of an optimal combination of immigrants and natives who complement each other.

¹⁵Note that coding was based on each respondent's answer to the following question: What does or did the firm or organization you work or worked for mainly do or make? Since a respondent could give an answer based on the past work, the respondents without a NACE Rev.1 code are not identical with the unemployed.

each of these 5 countries is extremely low: the highest is .015 in France.

The second variable of interest is a dummy variable that is equal to 1 if a respondent was unemployed and looking for a job in the last seven days and 0 otherwise.¹⁶ By using this binary variable, we check whether unemployed workers were more likely to think that immigrants have a negative labor market effect than the others. We call this variable *unemploy*.

The third variable of interest is a dummy variable that is equal to 1 if a respondent employed at least one person and 0 otherwise.¹⁷ Our expectation is that employers are less likely to prefer immigration restriction, for they might benefit from immigrants who could reduce the cost of production via their impact on the labor market or increase the returns to production factors that are owned by employers and are complementary to immigrant labor. We call this variable *employer*.

We are also interested in potential influence of public finance concerns on individual preferences for immigration restriction. Suppose immigrants are thought to become net users of the welfare state after entry. Existing net beneficiaries of the welfare state might then worry about a potential cut in the size of net benefit per capita. Net contributors to the welfare state might also fear a potential increase in the tax burden per capita. If immigrants are thought to become net contributors to the welfare state after entry, citizens of both types might recognize some net fiscal benefit of immigration.¹⁸ This necessitates us to have two variables. One is to capture the position of a

¹⁶We do not include those who were unemployed but were not looking for a job. Hence the dummy variable is not contaminated by the welfare-dependent unemployed, provided that the respondents were honest.

¹⁷Each respondent was asked the following question: How many employees do or did you have if any? This suggests that the respondent who is classified as an employer could also be an employee because the person might have referred to any past hiring or self-employment. For instance, a respondent could be a company employee who hired a housemaid at home.

¹⁸The following table summarizes what the paragraph suggests.

respondent in the welfare state—a net contributor or a net beneficiary. The other is to capture a respondent’s perception of immigrants’ position in the welfare state—net contributors or net beneficiaries. The latter is one of our dependent variables, ie, *fiscal*.

Accordingly, our fourth variable of interest is a measure of intra-country relative income per capita. This captures the position of each respondent in the welfare state: a lower/higher value of this measure implies the person is more likely to be a net beneficiary/contributor. ESS collected each respondent’s estimate of net household income in 12 ordered categories. The categories do not share an equal interval. We assign the mid-value of each category’s income range to the respondents in that category. The highest category has no upper bound and hence no mid-value. However, it contains only 0.78 percent of the whole sample and, at the country level, at most 2.79 percent in the UK sample. Therefore, we drop the observations in that category.

We then divide each figure by the corresponding number of household members because we examine the importance of economic self-interest to individual opinions. This yields net income per capita assuming, although unrealistic, that household income is shared equally by the members. We finally divide each figure by the corresponding national mean net income per capita. The variable measures the relative income position of each respondent in her/his country. For instance, 1.5 implies that the respondent’s net income is 50 percent higher than the national average. We call this variable *relinc*.

We have already reduced our sample from 15 to 10 countries due to insuffi-

<i>Immigrants are net ...</i>		Beneficiaries		Contributors	
<i>An adjustment is expected via ...</i>		Benefit	Tax	Benefit	Tax
<i>Residents with ...</i>	Low income	against	against/n.a.	for	for/n.a.
	High income	against/n.a.	against	for/n.a.	for

n.a. = not applicable

cient data on *isb*. We further drop Austria, Germany and Portugal from our sample because of a severe lack of data on *relinc* in these countries, eg, as much as over 50 percent of the Austrian sample. Again, we do not have sufficient information for imputation. For instance, education is often thought to be a good proxy for personal income. However, we found the correlation between *relinc* and education is rather weak in the data. This is advantageous to our analysis, however, because we want to separate the influence of education and that of income on the dependent variables.¹⁹

We also create more direct measures to indicate whether a respondent was a net beneficiary of the welfare state. ESS contains the data on the main source of each respondent's household income. There are 3 categories related to social welfare benefits: 'pension', 'unemployment or redundancy benefit' and 'other social welfare benefit'.²⁰ We create dummy variables, *pension*, *unempb* and *otherb*, respectively for these categories. Note that we created earlier a binary variable which indicates whether a respondent was unemployed and looking for a job in the last seven days, ie, *unemploy*. This variable is not the same as *unempb* because the latter refers to the household while the former is about the individual. We find that, in each of the 7 countries, the number of unemployed respondents whose households mainly depended on benefits related to unemployment or redundancy is lower than the total number of respondents

¹⁹In the samples used by Hanson, Scheve and Slaughter (2005) and Facchini and Mayda (2006), the progressivity of taxation and the generosity of social welfare provision vary according to the location of a respondent. However, across the 7 countries we examine, these do not vary sufficiently. Their net replacement ratios (the ratio of the net income during unemployment to the net income during employment) given by OECD (2004: Table 3.3b) fall between .65 and .78. Their differences between the average wage tax rates for single persons without a child who earn 67 percent and 167 percent of the annual wage earnings of an average production worker given by OECD (2003: Table 1) fall between .057 and .176.

²⁰Pension is not specified as public pension in the list of alternatives and hence potentially include both public and private pension. However, the list includes 'income from investment, savings and the like' as an alternative, which might be likely to be chosen in the case of private pension. Hence we assume 'pension' mainly represents public, rather than private, pension.

whose households mainly depended on such benefits.

Other explanatory variables include purely exogenous variables such as a respondent's gender (*female*) and approximate *age* in years in 2003. Each respondent's level of education is indicated by 3 *edu* dummies.²¹ We also have an indicator of whether at least one parent of a respondent was born abroad (*fparent*). By this dummy variable, we try to capture inherently different attitudes between immigrant-originating citizens and native citizens. A respondent's closeness to immigrants is approximated by the number of immigrant friends she/he had (2 *friend* dummies). In addition, we use a measure of a respondent's exposure to the media on current affairs and politics (*media*) in hours per weekday.²² The media is often thought to influence one's view, and we want to control such potential influence. Table 2.2 provides summary statistics for our variables.

3 Preliminary results

In this section, we examine the determinants of *labor*, *fiscal* and *anti* in turn.

We present univariate probit results which we will subsequently compare with the corresponding multivariate probit results to check if the results in this section are robust. In all specifications, we include *age*, *female*, *fparent*, *media*, *friend* dummies and country dummies as exogenous variables. The reference

²¹ESS sorted respondents into 7 groups according to a modified version of ISCED97. We collapse these into 4 groups by merging 'less than primary' and 'primary or basic (1st stage)', 'upper secondary' and 'postsecondary (non-tertiary)', and 'tertiary (1st stage)' and 'tertiary (2nd stage)'. The reason for merging is to avoid having a category with a very small number of observations in some countries.

²²We create this variable by using the responses to the 3 separate questions: On an average weekday, how much of your time is spent watching television (A2) / listening to the radio (A4) / reading newspapers (A6) about politics and current affairs? The responses to these questions were given on the same scale that has an equal interval in hours between categories. This enables us to aggregate the responses at the individual level.

Table 2.2 Summary statistics

	Definition	mean [†]	s.d. [†]	median	min.	max.	obs.	ESS no.
<i>anti</i>	Permissible number of immigrants from poorer European countries 1 = 'none' or 'a few'; 0 = 'some' or 'many'	0.429	0.495	0.00	0.00	1.00	12,737	D7
<i>labor</i>	Perceived labour-market impact of immigration on job opportunities 1 = 'take jobs away (0-4)'; 0 = 'neutral (5)' or 'help create jobs (6-10)'	0.328	0.469	0.00	0.00	1.00	12,635	D25
<i>fiscal</i>	Perceived net contribution of immigrants to government coffers 1 = 'take more out (0-4)'; 0 = 'neutral (5)' or 'put more in (6-10)'	0.491	0.499	1.00	0.00	1.00	12,602	D26
<i>isb</i>	Immigrants' penetration into industries based on NACE Rev.1	0.981	0.517	0.90	0.19	4.32	12,136	F24
<i>employer</i>	1 = unemployed and looking for a job in the last seven days	0.026	0.161	0.00	0.00	1.00	13,093	F8a,b
<i>reinc</i>	1 = employer in any industry	0.035	0.185	0.00	0.00	1.00	13,109	F13
<i>pension</i>	Intra-country relative net income per capita	1.000	0.763	0.81	0.01	10.78	11,383	F30,1
<i>unempb</i>	1 = pension is the main household income source	0.214	0.410	0.00	0.00	1.00	13,109	F29
<i>otherb</i>	1 = unemployment or redundancy benefits are the main household income source	0.017	0.131	0.00	0.00	1.00	13,109	F29
<i>friend</i>	1 = other social welfare benefits are the main household income source	0.046	0.210	0.00	0.00	1.00	13,109	F29
<i>media</i>	0 = no immigrant friend; 1 = a few; 2 = several	n.a.	n.a.	0.00	n.a.	n.a.	13,059	D47
<i>edu</i>	Hours spent on the media on current affairs and politics per weekday	1.615	1.226	1.50	0.00	9.75	13,083	A2,4,6
	0 = 'less than primary' or 'primary or basic (1st stage)'; 1 = 'lower secondary or basic (2nd stage)'; 2 = 'upper secondary' or 'postsecondary (non-tertiary)'; 3 = 'tertiary (1st stage)' or 'tertiary (2nd stage)'	n.a.	n.a.	2.00	n.a.	n.a.	13,087	F6
<i>fparent</i>	1 = at least one parent born abroad	0.138	0.345	0.00	0.00	1.00	13,099	C25,27
<i>age</i>	Approximate age in 2003 based on the year of birth	46.557	18.073	47.00	15.00	103.00	13,100	F3
<i>female</i>	1 = female	0.520	0.499	1.00	0.00	1.00	13,105	F2

Source: ESS 2002-2003; Eurostat NB: † weighted

group is UK males who had neither an immigrant friend nor a parent who was born abroad. Each observation is ESS-weighted in estimation.²³ The four tables for this section will report estimated marginal effects at the sample mean of each explanatory variable or differences between 0 and 1 in the case of binary explanatory variables.

3.1 Labor market concern

We first examine the determinants of *labor* by univariate probit. Table 3.1 reports estimated marginal effects for four specifications. Specification 3.1A adds *isb* to the right side of the equation. Its estimated marginal effect is insignificant, although the sign is positive as we expected, ie, a high value of *isb* implies that the respondent can easily be substituted by immigrant workers. We find that the likelihood of anticipating a negative labor market impact of immigration would be lower by .06 if at least one parent was born abroad than otherwise. The estimated marginal effects of *friend* dummies suggest that the more immigrant friends a respondent had the less likely he/she was to expect a negative labor market impact of immigration. The probability of *labor* = 1 is lower by 0.18 among those who had several immigrant friends than those who had none. These estimates of *fparent* and *friend* dummies may represent effects of a respondent's proximity to immigrants on her/his personal view. We additionally find that the number of hours spent on the media about current affairs and politics per weekday had a negative marginal effect on the likelihood: the estimate suggests that 5 additional hours exposed to the media may lower the probability of *labor* = 1 from the sample mean by .10. This might be a

²³See footnote 5.

consequence of acquiring various views on the issue via a larger number of hours spent on the media: those who are not well exposed to different opinions may well form a biased view. The estimated marginal effects of *media*, *fparent* and *friend* dummies are the same in sign and similar in magnitude across the four specifications in the table.

[Table 3.1 about here]

Specification 3.1B adds two dummy variables of interest to 3.1A, namely, *unemploy* and *employer*. We find the estimated marginal effects of both variables significant. The sign of the effect of *unemploy* is positive: the unemployed were more likely to think than the rest that immigrants impact on the national labor market would be negative. This seems to confirm our expectation that they are the ones who fear a further increase in labor market competition. The result agrees with the finding by Bauer, Lofstrom and Zimmermann (2000: Table 3, Model 4). The sign of the estimated marginal effect of *employer* also confirms our expectation that employers would be less likely to anticipate a negative labor market effect of immigration than the rest because they are likely to own production factors that complement immigrant labor. These findings seem to imply that, although *labor* is about immigration's general impact on the national labor market, it might reflect each respondent's economic self-interest.

Specification 3.1C further adds educational attainment dummies to 3.1B. The reference group had achieved a uppersecondary or nontertiary postsecondary level (*edu2*). These dummies' estimated marginal effects indicate that the level of educational attainment is negatively related to the likelihood of ex-

pecting a negative labor market impact of immigration.²⁴ We observe that the effects of *unemploy* and *employer* survive after controlling education, while the effect of *isb* not only remains insignificant but also becomes smaller in size. Specification 3.1D drops *isb* from 3.1C. This exclusion does not change what 3.1C suggests, and the resulting fall in the pseudo- R^2 is small.²⁵

Some studies in the literature interpret the significant, negative effect of education as a confirmation that citizens expect immigrants to be relatively unskilled and to substitute existing unskilled labor and complement skilled labor in the destination. To interpret our results in this way, first we need to assume that the respondents' answers that generate *labor* reflect economic self-interest. In other words, they took the labor-market question given in subsection 2.1 personally, ignoring the word "generally" in it. The estimated marginal effects of *unemploy* and *employer* may indicate that this might well be the case.

Suppose this is the case. Then, we can check whether our *edu* dummies can be interpreted as proxies for labor skills by splitting the sample by labor force participation. We thus follow Scheve and Slaughter (2001). Among those who were out of the labor force, labor skills should not matter. We estimated specification 3.1C by splitting our sample in two ways.²⁶ In one case, we treat those in education as being out of the labor force. In the other case, we treat them as being in the labor force. Table 3.2 shows that *edu* dummies exhibit the same relationship with *labor* whether respondents were in or out of the labor force. Accordingly, we are unable to treat *edu* dummies as proxies for

²⁴Note that, once education is controlled, a significantly positive marginal effect of the Irish dummy (*ie*) becomes insignificant. This might be due to the fact that the level of educational attainment is on average lower in Ireland than in the UK in our sample.

²⁵The pseudo- R^2 is McFadden's (1974) and is defined as $1 - L_1/L_0$ where L_1 is the log pseudolikelihood of the model and L_0 is that of the constant-only model.

²⁶By using Question F8a,b of ESS, respondents whose main activity was 'paid work' or 'a search for a job because of being unemployed' are classified as being in the labor force.

labor skills in our sample. We therefore take the position that has been taken mainly by non-economists: education is associated with less negative attitude in general, eg, Hainmueller and Hiscox (2007).

[Table 3.2 about here]

Table 3.2 gives us a few additional insights. First, it implies that a significant, negative marginal effect of *employer* comes from those who were out of the labor force. The magnitude is larger in Table 3.2 than in Table 3.1. Those who were both employed and employing simultaneously do not indicate a lower likelihood of perceiving a negative labor market impact of immigration. Second, the estimated marginal effect of *isb* is positive and significant among those who were out of the labor force. As we discussed in subsection 2.2, the sector of each respondent is based on his/her current as well as past work. Therefore, *isb* figures exist even among those who were out of the labor force. The significant positive marginal effects in the second and the fourth columns might well imply that there were respondents who had to leave the labor force because of the competition that was intensified by foreign workers in certain sectors.

3.2 Public finance concern

In this subsection, we examine the determinants of *fiscal* by univariate probit. Specification 3.3A in Table 3.3 adds a variable of main interest, *relinc*, to the right side of the equation. Its estimated marginal effect is negative and significant at 5 percent, which suggests that lower intranational net relative income per capita results in a higher probability of perceiving a negative net impact of

immigration on the domestic public finance. This might be in line with the case where current social welfare beneficiaries are more concerned with a potential increase in the number of net beneficiaries because they fear benefit cuts. However, the magnitude of the effect is small: it implies that a 50 percentage point decrease in the relative income position from the sample mean, ie, from 1 to .5, would increase the probability only by .003. The estimated marginal effects of *media*, *friend* dummies and *fparent* are all negative as in Table 3.1 for *labor* in the previous subsection.

[Table 3.3 about here]

Specification 3.3B adds three dummy variables of interest to 3.3A, namely, *pension*, *unempb* and *otherb*. We find that none of these dummies has a significant marginal effect on the probability of perceiving a negative net fiscal impact of immigration. We also observe that the estimated marginal effect of *relinc* becomes insignificant. The estimated marginal effects of the other control variables do not change. Note that, although the estimated effects of *relinc*, *pension*, *unempb* and *otherb* are individually insignificant, we found that they are jointly significant at 1 percent.

Specification 3.3C therefore does not drop any of these but further adds *edu* dummies to 3.3B. The estimated marginal effect of *relinc* then regains statistical significance, but with the positive sign this time. This suggests that after controlling education there is a positive relationship between the intranational relative net income per capita and the likelihood of perceiving a negative net fiscal impact of immigration. A theoretical explanation for this relationship is that, under a progressive taxation system, a person with higher

earnings is affected by fiscal adjustments via taxation disproportionately more than someone with lower earnings. Hence high-income earners should be more concerned with a potentially negative impact of immigration on the domestic public finance than the others. The inclusion of *edu* dummies does not make any of *pension*, *unempb* and *otherb* important, although they are jointly significant at 5 percent. Specification 3.3D drops these three dummies from 3.3C, but we find that the estimated marginal effects of the other explanatory variables remain almost the same. The marginal effects of *edu* dummies indicate that the higher educational attainment a respondent had the less likely she/he was to perceive a negative net fiscal impact of immigration. Thus, as we found in Table 3.1 for explaining *labor*, education seems to reduce the probability that a person expresses a negative view regarding economic impacts of immigration.

3.3 Preference for immigration restriction

We now use *labor* and *fiscal* as independent variables in explaining the variations in *anti*, for our main purpose is to investigate the importance of personal views about immigration's economic impacts to individual preferences for immigration restriction. Specification 3.4A in Table 3.4 suggests that the estimated marginal effects of both economic concerns are positive and significant. Perceiving a negative labor market impact of immigration seems to increase the probability that the respondent prefers immigration restriction by .18. The probability of preferring immigration restriction is greater by .20 among those who perceived a negative net fiscal impact of immigration than those who did not. The findings seem to suggest that these two economic concerns are reasonably important factors behind individual preferences for immigration restriction.

The estimated marginal effects of *media*, *fparent* and *friend* dummies are very similar across the four specifications in the table and also to the estimates in Tables 3.1 and 3.3.

[Table 3.4 about here]

Specification 3.4B adds educational attainment dummies to 3.4A. The inclusion of these variables does not change the estimated marginal effects of *labor* and *fiscal* much. The estimated marginal effects of the education dummies confirm our expectation that the more educated a respondent was the less likely the person was to be anti-immigration.

In the previous subsections, we found that both the status of being unemployed and being an employer respectively made a difference to the opinion about the labor market impact of immigration. We also found that the opinion about the net fiscal impact of immigration depended on the relative income position. Specification 3.4C adds to 3.4B these variables interacted with the corresponding opinion variables. The estimated marginal effect of *labor*employer* is significant and positive, suggesting that the contribution of labor market concern to the likelihood of preferring immigration restriction might be much more important for employers than for the rest. However, note that we found in Table 3.1 that employers were less likely to perceive a negative labor market impact of immigration. The estimated marginal effect of *fiscal*relinc* in this specification is significant only at 90 percent.

Specification 3.4D adds to 3.4C more interaction terms to check whether any of the variables which we found insignificant in Tables 3.1 and 3.3 makes a difference to the importance of *labor* and *fiscal* to *anti*. We find none of

the added, interaction terms significant, while the estimated marginal effect of *fiscal*reline* becomes significant at 99 percent. Its sign is negative, indicating that, although we found in Table 3.3 that relative income per capita was positively related to the probability of perceiving a negative net fiscal impact of immigration, the contribution of public finance concern to the probability of preferring immigration restriction is less important to high- than low-income earners among those who thought that immigrants were net beneficiaries of the welfare system.

4 Model

In our preliminary analysis, we estimated the three equations of interest separately by univariate probit. Table 3.4 suggested that the perception of a negative impact of immigration on the national labor market and/or the domestic public finance contributes to a preference for immigration restriction from poorer countries in Europe. However, we suspect that both *labor* and *fiscal* are endogenous in the equation for explaining *anti*. Let $1[\cdot]$ be the indicator function which is equal to 1 if the condition inside the square brackets is met and 0 otherwise. Our model consists of the following three equations:

$$anti = 1[\alpha_1 labor + \alpha_2 fiscal + \mathbf{x}_1 \boldsymbol{\beta}_1 + u_1 > 0] \quad (4.1)$$

$$labor = 1[\mathbf{x}_2 \boldsymbol{\beta}_2 + u_2 > 0] \quad (4.2)$$

$$fiscal = 1[\mathbf{x}_3 \boldsymbol{\beta}_3 + u_3 > 0] \quad (4.3)$$

Note that, for a given respondent, the error terms are likely to be correlated through her/his unobservable characteristics, eg, negative/positive attitude in

general. If the correlation between u_1 and u_2 is not zero, u_1 and $labor$ are correlated. The univariate probit estimation of equation (4.1) is then inconsistent for α_1 , α_2 and β_1 .²⁷

Let us assume that \mathbf{u} is independent of \mathbf{x} and is trivariate-normally distributed with means zero, variances one and covariances ρ_{ij} where $i, j = 1, 2, 3$ indicate equations (4.1), (4.2) and (4.3) respectively. If this assumption holds, the maximum likelihood trivariate probit estimation of the three equations gives consistent and asymptotically efficient estimators. This is done by the use of the GHK simulator.²⁸

5 Main results

Table 5.1 presents the coefficients from trivariate probit estimation of specifications 3.4D, 3.1C and 3.3C.²⁹ In the first column, we have univariate probit coefficients to be compared with trivariate probit coefficients in the second column. The results for the equation for *anti* differ between univariate and trivariate probit. We notice that the estimated coefficients on both *labor* and *fiscal* become insignificant when we assume trivariate normal error terms, while they are significantly positive when we assume no correlation between each pair of the error terms of the equations.

However, the positive coefficient on *labor*employer* remains significant. This

²⁷See Wooldridge (2002: 477).

²⁸We used `mvprobit`, the STATATM command by Cappellari and Jenkins, which uses the Geweke-Hajivassiliou-Keane simulator to evaluate multidimensional normal integrals in the likelihood function. The number of pseudo-random standard uniform variates being drawn when calculating the simulated likelihood is 99: close to \sqrt{n} . Our study differs from Dustmann and Preston (2004; 2006) who estimated a system of equations in stages.

²⁹Estimated marginal effects from trivariate probit estimation is not directly comparable with the ones from univariate probit estimation because there are eight types of predicted probability for the former, eg, $\Pr(anti = 1, labor = 1, fiscal = 1)$. Hence we present estimated coefficients.

seems to confirm our earlier finding that the contribution of labor market concern to the probability of preferring immigration restriction might have been important for employers if they perceived a negative effect of immigration. We also obtain a significantly negative coefficient on *fiscal*relinc*, which appears to confirm our earlier finding that the contribution of public finance concern to the probability of preferring immigration restriction might have been less important for high- than low-income earners.

We also notice that the estimated coefficients on *media*, *fparent* and *friend* dummies are all insignificant in the case of trivariate probit, while they are all significant in the case of univariate probit. The negative coefficients on Ireland and Sweden are significant, which appears to be consistent with the fact that these two countries are the ones that immediately opened their labor market to the newly joining member countries on 1 May 2004.

[Table 5.1 about here]

Turning to the equation for *labor*, the results from trivariate probit suggest that neither the status of being unemployed nor the status of being an employer makes a difference in terms of perceiving a negative labor market impact of immigration. This is in contrast to what the corresponding univariate probit results suggest. The other coefficients are roughly the same between univariate and trivariate probit. Although the sign of the estimated coefficient on *isb* changes from positive to negative, it is significant only at 10 percent.

Turning to the equation for *fiscal*, the trivariate probit results are almost the same as the corresponding univariate probit results. We confirm that the estimated coefficient on the intracountry relative net income position is

significantly positive, suggesting that the higher the relative income position of a respondent was the more likely the person was to anticipate a negative net fiscal impact of immigration, other things equal.

Table 5.1 also provides, at its bottom, estimated correlation coefficients between a pair of the error terms of the three equations. The figures suggest that there is a positive correlation between the error terms of the equations for explaining *labor* and *fiscal*.³⁰ This suggests that these equations share the same unobservables in the error terms. However, negative ρ_{12} and ρ_{13} are small in magnitude and also insignificant. These two correlation coefficients measure the associations between the error terms after the influence of *labor* and *fiscal* are accounted for in the equation for explaining *anti*. The two opinion variables would include the unobservables, u_2 and u_3 , respectively. This is probably the reason why ρ_{12} and ρ_{13} are insignificant.³¹

We have found neither *labor* nor *fiscal* significant in the equation for explaining *anti*. However, we have some evidence of a positive association between *labor* and *fiscal*. The weighted cross-product ratio between these opinion variables is 4.76, which indicates that the probability that both variables are equal to 1 for a given citizen is almost 5 times as high as the probability that only one of them is equal to 1. In addition, Table 5.1 shows large standard errors for the estimated coefficients on these variables in the case of trivariate probit. Therefore, we check if multicollinearity is responsible for the insignificance of these two opinion variables.

[Table 5.2 about here]

³⁰Bivariate probit estimation results in a positive correlation of a similar order of magnitude between the error terms of these two equations. The results are available upon request.

³¹See Greene (2003: 716-717).

Specification 5.2A in Table 5.2 drops five variables involving *fiscal* from 3.4D of Table 5.1, leaving four variables related to labor market concern in explaining *anti*. This exclusion does not make the estimated coefficient on *labor* significant. However, as we found in Table 5.1, the estimated coefficient on *labor*employer* remains significantly positive. As a result of the exclusion, the negative coefficients on *media*, *fparent* and *friend* dummies regain significance. We also notice that, as a result of the exclusion, ρ_{13} becomes significantly positive while ρ_{12} remains insignificant. That is, the error terms of the equations for explaining *anti* and *fiscal* now appear to share the same unobservables.

Specification 5.2B in Table 5.2 drops four variables involving *labor* from 3.4D of Table 5.1, leaving five variables related to public finance concern in explaining *anti*. The exclusion does not make the estimated coefficient on *fiscal* significant. But, as we found in Table 5.1, the estimated coefficient on *fiscal*relinc* remains significantly negative. We also note that the estimated coefficients on *media* and *friend* dummies are significant only at 10 percent, while that on *fparent* is insignificant. In Table 5.1, they were all insignificant. As for the correlation between the error terms, we find that both ρ_{12} and ρ_{13} are insignificant.

Specification 5.2C in the table drops all variables involving either *labor* or *fiscal* from 3.4D of Table 5.1. As a result, we find that both ρ_{12} and ρ_{13} become significantly positive. This is probably because *labor* and *fiscal* contain subjective bias that is not controlled in the equations for explaining these two opinion variables.³²

What the results in Table 5.2 suggest is that the insignificance of *labor* and

³²In these equations, we do not have an opinion variable on the right side.

fiscal in explaining *anti* is perhaps not due to multicollinearity. Furthermore, the finding that ρ_{12} is insignificant in Specification 5.2B implies that the unobservables in the error term of the equation for explaining *labor* might be contained in the variations in *fiscal*relinc*. In Table 5.3, we present estimated coefficients from seemingly unrelated trivariate probit where we drop the opinion variables and instead include all variables of interest used to explain either *labor* or *fiscal*. We want to check the effect of each non-subjective variable on our three dependent variables. The correlation coefficients between a pair of the error terms of the equations are all significantly positive, which perhaps captures unexplained subjective bias that each respondent had.

[Table 5.3 about here]

We find *relinc* significant in all three equations. It positively contributes to the probability of perceiving a negative net fiscal impact of immigration, which is consistent with our earlier finding. We find that it negatively contributes to the probability of perceiving a negative labor market impact of immigration and also the probability of preferring immigration restriction. The negative contribution to the latter is slightly smaller in magnitude compared with the estimated coefficients on *fiscal*relinc* in Tables 5.1 and 5.2, but it suggests that not the interaction term but *relinc* on its own has a negative relationship with *anti*.

We find that, while *unemploy* remains insignificant, the estimated coefficient on *unempb* is significantly positive in explaining *labor*. Note that, while *unemploy* indicates whether the respondent was unemployed, *unempb* indicates whether the main source of household income was an unemployment benefit.

The finding might suggest that those who had to rely on unemployment benefits for living form a more homogeneous group than those who were unemployed and looking for a job. That is, a threat of labor market competition intensified by immigrants might well be more serious for those who rely on unemployment benefits.

Citizens who depended on unemployment benefits for living were less likely to prefer immigration restriction even though they were more likely to think that immigrants would have a negative impact on the national labor market. Table 5.3 also suggests that those who relied on pension for living were more likely to prefer immigration restriction.³³

Finally, the table implies that employers were more likely to prefer immigration restriction than the others. The positive coefficient is similar in magnitude to those on *labor*employer* in Tables 5.1 and 5.2, and this probably suggests that not the interaction term but *employer* on its own has a positive relationship with *anti*.

6 Discussion

One of the main findings of this paper is that the variations in citizens' opinions about immigrants' overall impact on the labor market and the public finance of their countries do not explain the variations in their preferences for immigration restriction. It appears that although these economic issues were debated with respect to the inclusion of Eastern European countries in the European Union around the time of the 2004 expansion, they were not important to the

³³Tamura (2006) constructed a model where pensioners' preferences for immigration restriction are due to a potential increase in tax burden caused by immigrants. However, what we observe in Table 5.3 does not suggest that this fiscal channel is important.

preferences of the then EU citizens. Our two opinion variables are about overall effects of immigration and are not necessarily the same as the anticipated effects specific to each respondent. However, we also found in the results from the estimation of the reduced forms for the two opinion variables that these variables seem to reflect some economic self-interest of each respondent. The results seem to suggest that perceived immigrants' economic impact does not determine whether a citizen is anti- or pro-immigration even if the impact in question is specific to him/her. An implication is that economic arguments for and against the free-movement-of-workers principle might not be able to influence the extent of citizens' support for it, whether they respectively would gain or lose economically.

Another finding which is also new to the literature is that citizen employers were more likely to be anti-immigration than the rest. We expected the opposite, ie, employers are more pro-immigration than the rest, by reasoning that they would benefit from immigrant labor that is likely to increase the returns to production factors which they own. Immigrants may also solve labor shortage at a low cost. Our finding is thus counterintuitive at first glance. However, there is some evidence that self-employed immigrants from Eastern Europe had been on the increase since the mid-1990s. For instance, the UK's Home Office (2004: 15) reports that the number of persons who were granted an extension to stay in the country as a person of independent means or business persons increased by 151 percent in 2003, and most of the increase is due to nationals of Poland, Lithuania, Bulgaria and Romania.³⁴ In the period 1991-1996, the signing of Europe Agreements between the then member countries and candi-

³⁴See also OECD (2006: Table I.13).

date countries took place. The agreements allowed nationals of the latter to enter the Union via self-employment.³⁵ Our finding might then imply that employers were concerned with competition intensified by immigration.³⁶ If this is the case, economic self-interest does matter to preferences for immigration restriction.

The limitation of this study is that, as a consequence of attempting to preserve a good representation of each country's citizen population, our sample contains only 7 EU countries of the pre-2004 enlargement. Since these countries are not very different from each other in terms of tax progressivity and welfare generosity, we were unable to study welfare state determinants in the way that Hanson, Scheve and Slaughter (2005) and Facchini and Mayda (2006) did.³⁷ If ESS could conduct another immigration module from the EU27 countries in the future, this limitation might be overcome.

³⁵An Europe Agreement was signed with Hungary (1991), Poland (1991), Slovak Republic (1993), Czech Republic (1993), Latvia (1995), Lithuania (1995), Estonia (1995) and Slovenia (1996) of the 10 newly joining countries. The accession by Malta (1970) and Cyprus (1972) were not subject to Transitional Arrangements from 1 May 2004 onwards. Note also that an Association Agreement was signed with Romania (1993) and Bulgaria (1993), providing nationals of these countries with entries via self-employment. The agreements are in the Official Journal of the European Union (europa.eu.int/eur-lex/lex/en/index.htm), and a list of the relevant volumes of the journal can be found in the document about the 2004 enlargement (europa.eu/scadplus/leg/en/lvb/e50017.htm).

³⁶Although Belgium was excluded from our sample, European Industrial Relations Observatory (www.eiro.eurofound.europa.eu/2005/09/feature/be0509303f.html) gives a view shared by Belgian building companies, which implies such intensified competition. They argue that they lose a large number of contracts due to foreign subcontracting and pseudo-self-employment. However, in their case, the solution is seen to be freedom for Belgian companies to employ foreign construction workers in the country, which is more in line with our pre-analysis expectation than the finding.

³⁷Refer to footnote 19.

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Table 3.1 Probit estimates of marginal effects on the likelihood of perceiving a negative labor market effect of immigration (labor = 1)

Specification	3.1A	3.1B	3.1C	3.1D
isb	0.016 0.017	0.017 0.017	0.006 0.011	..
unemploy	..	0.069 *** 0.012	0.047 *** 0.013	0.048 *** 0.018
employer	..	-0.029 *** 0.005	-0.025 *** 0.006	-0.021 *** 0.008
edu0	..	..	0.078 *** 0.008	0.071 *** 0.008
edu1	..	..	0.022 0.019	0.024 0.017
edu3	..	..	-0.150 *** 0.007	-0.143 *** 0.009
media	-0.022 *** 0.004	-0.022 *** 0.004	-0.019 *** 0.005	-0.015 ** 0.007
friend1	-0.097 *** 0.017	-0.097 *** 0.016	-0.077 *** 0.016	-0.073 *** 0.017
friend2	-0.186 *** 0.008	-0.185 *** 0.008	-0.156 *** 0.006	-0.146 *** 0.007
fparent	-0.060 *** 0.015	-0.062 *** 0.014	-0.068 *** 0.011	-0.082 *** 0.011
female	-0.003 0.010	-0.004 0.011	-0.002 0.010	0.006 0.008
age	0.000 *** 0.000	0.000 *** 0.000	-0.001 *** 0.000	-0.001 *** 0.000
dk	-0.234 *** 0.000	-0.234 *** 0.000	-0.233 *** 0.003	-0.233 *** 0.002
fi	-0.121 *** 0.001	-0.121 *** 0.001	-0.122 *** 0.006	-0.125 *** 0.005
fr	-0.064 *** 0.002	-0.065 *** 0.002	-0.077 *** 0.005	-0.081 *** 0.006
ie	0.032 *** 0.001	0.032 *** 0.001	0.006 0.004	0.016 0.003
nl	-0.188 *** 0.000	-0.188 *** 0.000	-0.190 *** 0.002	-0.188 *** 0.002
se	-0.242 *** 0.001	-0.242 *** 0.001	-0.246 *** 0.003	-0.243 *** 0.003
obs.	11718.000	11712.000	11706.000	12559.000
log pseudolikelihood	-6957.895	-6949.914	-6798.416	-7337.913
pseudo-R ²	0.061	0.061	0.081	0.076

Significance level indicators: *** = 1%, ** = 5%, * = 10%

Heteroschedasticity-robust standard errors adjusting for intracountry correlation

The reference group is UK males who attained the uppersecondary or the nontertiary postsecondary level of education (edu2) and had neither an immigrant friend (friend0) nor a parent who was born abroad.

Table 3.2 Probit estimates of marginal effects on the likelihood of perceiving a negative labor market effect of immigration (labor = 1) by labor-force participation

Treating those in education as ...

... the labor force	1. Out of the labor force		2. In the labor force	
	In	Out of	In	Out of
isb	-0.002 0.013	0.013 ** 0.006	-0.003 0.012	0.015 *** 0.004
unemploy	0.042 *** 0.014	..	0.051 *** 0.013	..
employer	0.012 0.026	-0.075 ** 0.027	-0.001 0.019	-0.058 *** 0.017
edu0	0.062 *** 0.019	0.073 *** 0.017	0.045 *** 0.017	0.097 *** 0.013
edu1	0.023 * 0.013	0.025 0.033	0.016 0.016	0.041 0.028
edu3	-0.159 *** 0.011	-0.136 *** 0.024	-0.156 *** 0.011	-0.132 *** 0.024
media	-0.016 0.010	-0.025 *** 0.004	-0.016 0.011	-0.026 *** 0.005
friend1	-0.063 *** 0.009	-0.093 * 0.048	-0.073 *** 0.009	-0.078 0.058
friend2	-0.132 *** 0.008	-0.188 *** 0.007	-0.143 *** 0.008	-0.179 *** 0.008
fparent	-0.065 ** 0.030	-0.074 ** 0.030	-0.075 *** 0.025	-0.054 0.032
female	0.005 0.014	-0.010 0.011	-0.007 0.010	0.001 0.019
age	-0.002 *** 0.000	-0.001 ** 0.000	-0.001 ** 0.000	-0.001 *** 0.000
dk	-0.244 *** 0.002	-0.201 *** 0.008	-0.243 *** 0.002	-0.187 *** 0.010
fi	-0.148 *** 0.004	-0.077 *** 0.007	-0.149 *** 0.004	-0.047 *** 0.009
fr	-0.099 *** 0.003	-0.040 *** 0.009	-0.090 *** 0.002	-0.053 *** 0.013
ie	-0.020 *** 0.004	0.055 *** 0.013	-0.021 *** 0.005	0.072 *** 0.017
nl	-0.201 *** 0.001	-0.168 *** 0.004	-0.199 *** 0.001	-0.168 *** 0.005
se	-0.249 *** 0.001	-0.233 *** 0.007	-0.243 *** 0.001	-0.240 *** 0.008
obs.	6871.000	4835.000	7636.000	4070.000
log pseudolikelihood	-3908.070	-2874.243	-4328.709	-2445.989
pseudo-R ²	0.091	0.071	0.092	0.067

Significance level indicators: *** = 1%, ** = 5%, * = 10%

Heteroschedasticity-robust standard errors adjusting for intracountry correlation

For the out-of-the-labor-force group, unemploy is not applicable.

The reference group is UK males who had neither an immigrant friend (friend0) nor a parent who was born abroad, and who attained the upper secondary or the nontertiary postsecondary level of education (edu2).

Table 3.3 Probit estimates of marginal effects on the likelihood of perceiving a negative net fiscal effect of immigration (fiscal = 1)

Specification	3.3A	3.3B	3.3C	3.3D
relinc	-0.006 ** 0.002	-0.003 0.003	0.019 *** 0.003	0.017 *** 0.005
pension	..	0.031 0.035	0.018 0.034	..
unempb	..	-0.003 0.079	-0.017 0.085	..
otherb	..	0.046 0.063	0.033 0.065	..
edu0	..	..	0.045 ** 0.018	0.047 ** 0.021
edu1	..	..	0.024 * 0.013	0.024 * 0.013
edu3	..	..	-0.119 *** 0.033	-0.119 *** 0.031
media	-0.023 *** 0.006	-0.023 *** 0.006	-0.021 *** 0.007	-0.021 *** 0.007
friend1	-0.093 *** 0.017	-0.092 *** 0.016	-0.079 *** 0.018	-0.079 *** 0.018
friend2	-0.178 *** 0.019	-0.178 *** 0.019	-0.156 *** 0.023	-0.155 *** 0.022
fparent	-0.079 *** 0.024	-0.079 *** 0.023	-0.084 *** 0.020	-0.084 *** 0.021
female	-0.016 *** 0.005	-0.016 *** 0.005	-0.013 ** 0.005	-0.013 ** 0.005
age	0.000 *** 0.000	0.000 0.000	0.000 0.000	0.000 0.000
dk	-0.040 *** 0.000	-0.038 *** 0.002	-0.036 *** 0.003	-0.037 *** 0.005
fi	-0.057 *** 0.002	-0.057 *** 0.001	-0.052 *** 0.008	-0.052 *** 0.008
fr	-0.135 *** 0.004	-0.134 *** 0.005	-0.140 *** 0.002	-0.141 *** 0.004
ie	0.040 *** 0.002	0.043 *** 0.001	0.025 *** 0.008	0.023 ** 0.010
nl	-0.112 *** 0.000	-0.110 *** 0.002	-0.111 *** 0.003	-0.112 *** 0.004
se	-0.138 *** 0.003	-0.136 *** 0.007	-0.134 *** 0.001	-0.136 *** 0.005
obs.	10989.000	10989.000	10982.000	10982.000
log pseudolikelihood	-7326.220	-7322.874	-7250.124	-7251.748
pseudo-R ²	0.038	0.038	0.047	0.047

Significance level indicators: *** = 1%, ** = 5%, * = 10%

Heteroschedasticity-robust standard errors adjusting for intracountry correlation

The reference group is UK males who had neither an immigrant friend (friend0) nor a parent who was born abroad, and who attained the upper secondary or the nontertiary postsecondary level of education (edu2).

Table 3.4 Probit estimates of marginal effects on the likelihood of preferring immigration restriction (anti = 1)

Specification	3.4A	3.4B	3.4C	3.4D
labor	0.182 *** 0.005	0.162 *** 0.006	0.151 *** 0.012	0.159 *** 0.028
labor*isb	..	..	..	-0.011 0.022
labor*unemploy	..	..	-0.072 0.054	-0.053 0.057
labor*employer	..	..	0.188 ** 0.072	0.204 *** 0.066
fiscal	0.208 *** 0.006	0.199 *** 0.005	0.208 *** 0.016	0.210 *** 0.009
fiscal*relinc	..	..	-0.010 * 0.005	-0.015 *** 0.002
fiscal*pension	..	..	..	0.011 0.048
fiscal*unempb	..	..	..	-0.078 0.078
fiscal*otherb	..	..	..	0.001 0.043
edu0	..	0.120 *** 0.013	0.134 *** 0.015	0.124 *** 0.008
edu1	..	0.070 *** 0.006	0.082 *** 0.013	0.084 *** 0.018
edu3	..	-0.132 *** 0.022	-0.127 *** 0.028	-0.128 *** 0.026
media	-0.020 *** 0.003	-0.017 *** 0.003	-0.018 *** 0.004	-0.017 *** 0.004
friend1	-0.077 *** 0.004	-0.054 *** 0.006	-0.066 *** 0.007	-0.068 *** 0.008
friend2	-0.162 *** 0.014	-0.130 *** 0.017	-0.136 *** 0.027	-0.137 *** 0.030
fparent	-0.077 *** 0.026	-0.090 ** 0.033	-0.081 ** 0.031	-0.071 ** 0.033
female	0.005 0.018	0.004 0.019	-0.002 0.023	-0.007 0.018
age	0.004 *** 0.001	0.003 *** 0.000	0.002 *** 0.000	0.002 * 0.001
dk	0.022 *** 0.000	0.033 *** 0.001	0.049 *** 0.004	0.051 *** 0.007
fi	0.088 *** 0.001	0.096 *** 0.005	0.119 *** 0.010	0.124 *** 0.011
fr	0.044 *** 0.005	0.030 *** 0.003	0.030 *** 0.001	0.030 *** 0.004
ie	-0.165 *** 0.001	-0.182 *** 0.002	-0.179 *** 0.002	-0.181 *** 0.005
nl	-0.004 *** 0.001	-0.007 *** 0.002	-0.009 ** 0.004	-0.006 0.005
se	-0.277 *** 0.000	-0.289 *** 0.001	-0.280 *** 0.002	-0.281 *** 0.002
obs.	12042.000	12031.000	10591.000	10027.000
log pseudolikelihood	-7150.992	-6991.492	-6131.410	-5817.939
pseudo-R ²	0.131	0.150	0.149	0.146

Significance level indicators: *** = 1%, ** = 5%, * = 10%

Heteroschedasticity-robust standard errors adjusting for intracountry correlation

The reference group is UK males who had neither an immigrant friend (friend0) nor a parent who was born abroad, and who attained the upper secondary or the nontertiary postsecondary level of education (edu2).

Table 5.1 Comparison between univariate and trivariate probit estimates of coefficients for explaining anti, labor and fiscal

Dependent	Independent	Univariate	Trivariate
anti (3.4D)	labor	0.409 *** 0.072	0.380 0.491
	labor*isb	-0.030 0.058	-0.030 0.055
	labor*unemploy	-0.141 0.154	-0.142 0.168
	labor*employer	0.518 *** 0.172	0.513 *** 0.164
	fiscal	0.550 *** 0.024	0.772 0.905
	fiscal*relinc	-0.041 *** 0.007	-0.045 *** 0.015
	fiscal*pension	0.029 0.124	0.025 0.115
	fiscal*unempb	-0.211 0.217	-0.203 0.266
	fiscal*otherb	0.005 0.111	0.005 0.113
	edu0	0.315 *** 0.020	0.303 *** 0.094
	edu1	0.216 *** 0.046	0.208 *** 0.042
	edu3	-0.342 *** 0.074	-0.321 *** 0.107
	media	-0.045 *** 0.012	-0.040 0.039
	friend1	-0.178 *** 0.023	-0.162 0.132
	friend2	-0.368 *** 0.085	-0.340 0.304
	fparent	-0.190 ** 0.090	-0.173 0.195
	female	-0.020 0.048	-0.017 0.040
	age	0.005 * 0.003	0.005 ** 0.002
	dk	0.130 *** 0.018	0.130 0.161
	fi	0.315 *** 0.029	0.321 *** 0.117
	fr	0.078 *** 0.012	0.109 0.161
	ie	-0.519 *** 0.016	-0.522 *** 0.016
	nl	-0.017 0.015	0.002 0.220
	se	-0.879 *** 0.010	-0.852 *** 0.313
	cons.	-0.649 *** 0.121	-0.783 0.770
obs.		10027.000	10027.000
log pseudolikelihood		-5817.939	..

Continued

Table 5.1 (2 of 3)

		(Uni.)	(Tri.)
labor (3.1C)	isb	0.017 0.031	-0.026 * 0.014
	unemploy	0.130 *** 0.035	0.033 0.054
	employer	-0.073 *** 0.020	-0.115 0.121
	edu0	0.214 *** 0.023	0.207 *** 0.035
	edu1	0.063 0.055	0.109 * 0.057
	edu3	-0.458 *** 0.026	-0.428 *** 0.025
	media	-0.056 *** 0.016	-0.074 *** 0.020
	friend1	-0.223 *** 0.048	-0.233 *** 0.053
	friend2	-0.484 *** 0.024	-0.505 *** 0.048
	fparent	-0.201 *** 0.034	-0.162 *** 0.037
	female	-0.007 0.030	0.014 0.048
	age	-0.004 *** 0.000	-0.005 *** 0.001
	dk	-0.893 *** 0.018	-0.868 *** 0.010
	fi	-0.389 *** 0.022	-0.360 *** 0.017
	fr	-0.223 *** 0.016	-0.194 *** 0.017
	ie	0.018 0.013	0.074 *** 0.009
	nl	-0.636 *** 0.010	-0.623 *** 0.004
	se	-0.945 *** 0.020	-0.928 *** 0.020
	cons.	0.294 *** 0.056	0.386 *** 0.070
obs.		11706.000	10027.000
log pseudolikelihood		-6798.416	..

Continued

Table 5.1 (3 of 3)

(Uni.)

(Tri.)

fiscal (3.3C)	relinc	0.048 ***	0.059 ***
		0.009	0.019
	pension	0.045	0.075
		0.087	0.107
	unempb	-0.044	-0.086
		0.214	0.258
	otherb	0.083	0.002
		0.164	0.075
	edu0	0.115 **	0.152 **
		0.045	0.076
	edu1	0.061 *	0.107 ***
		0.035	0.014
	edu3	-0.301 ***	-0.284 ***
		0.085	0.093
	media	-0.054 ***	-0.064 ***
		0.018	0.019
	friend1	-0.199 ***	-0.198 ***
		0.047	0.053
	friend2	-0.398 ***	-0.377 ***
		0.062	0.066
	fparent	-0.213 ***	-0.196 ***
		0.052	0.051
	female	-0.033 **	-0.028 *
		0.013	0.015
	age	-0.001	-0.001
		0.001	0.002
	dk	-0.090 ***	-0.093 ***
		0.009	0.009
	fi	-0.130 ***	-0.130 ***
		0.020	0.022
	fr	-0.354 ***	-0.395 ***
		0.005	0.015
	ie	0.063 ***	0.070 ***
		0.021	0.023
	nl	-0.283 ***	-0.302 ***
		0.007	0.003
	se	-0.344 ***	-0.362 ***
		0.004	0.008
	cons.	0.490 ***	0.491 ***
		0.053	0.051
obs.		10982.000	10027.000
log pseudolikelihood		-7250.124	..
log pseudolikelihood (total)		..	-15807.185
rho12		..	-0.025
			0.444
rho13		..	-0.130
			0.644
rho23		..	0.487 ***
			0.035

Significance level indicators: *** = 1%, ** = 5%, * = 10%

Heteroschedasticity-robust standard errors adjusting for intracountry correlation

rho is the estimated correlation between the error terms from the two equations.
For example, rho12 is rho between the equations for explaining anti and labor.

The reference group is UK males who had neither an immigrant friend (friend0) nor a parent who was born abroad, and who attained the upper secondary or the nontertiary postsecondary level of education (edu2).

Table 5.2 Additional trivariate probit estimates of coefficients for explaining anti, labor and fiscal

Dependent	Independent	5.2A	5.2B	5.2C
anti	labor	0.249
		0.391		
	labor*isb	-0.031
		0.053		
	labor*unemploy	-0.180
		0.115		
	labor*employer	0.485 ***
		0.133		
	fiscal	..	0.767	..
			0.934	
	fiscal*relinc	..	-0.043 **	..
			0.020	
	fiscal*pension	..	0.016	..
			0.113	
fiscal*unempb	..	-0.249	..	
		0.217		
fiscal*otherb	..	-0.001	..	
		0.111		
edu0	0.347 ***	0.322 ***	0.354 ***	
	0.035	0.061	0.024	
edu1	0.236 ***	0.218 ***	0.237 ***	
	0.041	0.029	0.042	
edu3	-0.407 ***	-0.369 ***	-0.431 ***	
	0.052	0.050	0.086	
media	-0.060 ***	-0.050 *	-0.065 ***	
	0.013	0.026	0.014	
friend1	-0.224 ***	-0.188 *	-0.238 ***	
	0.051	0.098	0.031	
friend2	-0.452 ***	-0.399 *	-0.483 ***	
	0.143	0.224	0.095	
fparent	-0.232 **	-0.197	-0.247 ***	
	0.092	0.158	0.075	
female	-0.022	-0.020	-0.025	
	0.051	0.035	0.044	
age	0.005 ***	0.005 *	0.004 ***	
	0.001	0.002	0.001	
dk	0.067	0.029	0.002	
	0.109	0.049	0.019	
fi	0.255 ***	0.267 ***	0.217 ***	
	0.082	0.065	0.029	
fr	-0.016	0.080	-0.035 ***	
	0.021	0.133	0.009	
ie	-0.485 ***	-0.495 ***	-0.460 ***	
	0.014	0.012	0.018	
nl	-0.110	-0.075	-0.156 ***	
	0.082	0.126	0.012	
se	-0.962 ***	-0.955 ***	-1.014 ***	
	0.089	0.159	0.010	
cons.	-0.196	-0.564	-0.060	
	0.142	0.546	0.075	

Continued

Table 5.2 (2 of 3)

	(5.2A)	(5.2B)	(5.2C)
labor (3.1C)			
isb	-0.025 0.015	-0.020 0.016	-0.019 0.016
unemploy	0.034 0.057	0.033 0.061	0.041 0.060
employer	-0.121 0.119	-0.166 * 0.098	-0.163 0.102
edu0	0.207 *** 0.033	0.206 *** 0.034	0.206 *** 0.033
edu1	0.108 * 0.058	0.106 * 0.059	0.106 * 0.059
edu3	-0.427 *** 0.025	-0.428 *** 0.025	-0.426 *** 0.023
media	-0.074 *** 0.020	-0.074 *** 0.019	-0.074 *** 0.019
friend1	-0.233 *** 0.053	-0.234 *** 0.052	-0.234 *** 0.052
friend2	-0.506 *** 0.044	-0.508 *** 0.041	-0.507 *** 0.042
fparent	-0.161 *** 0.034	-0.161 *** 0.033	-0.161 *** 0.032
female	0.014 0.048	0.011 0.046	0.012 0.047
age	-0.005 *** 0.001	-0.005 *** 0.001	-0.005 *** 0.001
dk	-0.869 *** 0.012	-0.870 *** 0.013	-0.870 *** 0.013
fi	-0.360 *** 0.018	-0.359 *** 0.017	-0.359 *** 0.017
fr	-0.194 *** 0.019	-0.193 *** 0.018	-0.193 *** 0.018
ie	0.075 *** 0.009	0.077 *** 0.008	0.077 *** 0.008
nl	-0.623 *** 0.005	-0.622 *** 0.003	-0.622 *** 0.003
se	-0.928 *** 0.021	-0.926 *** 0.020	-0.926 *** 0.019
cons.	0.383 *** 0.069	0.379 *** 0.075	0.376 *** 0.074

Continued

Table 5.2 (3 of 3)

(5.2A)

(5.2B)

(5.2C)

fiscal (3.3C)	relinc	0.064 *** 0.012	0.057 *** 0.020	0.063 *** 0.012
	pension	0.065 0.105	0.077 0.104	0.067 0.105
	unempb	-0.036 0.204	-0.082 0.257	-0.031 0.201
	otherb	-0.018 0.094	0.004 0.071	-0.017 0.094
	edu0	0.154 ** 0.071	0.152 ** 0.077	0.154 ** 0.071
	edu1	0.104 *** 0.016	0.106 *** 0.015	0.104 *** 0.016
	edu3	-0.284 *** 0.091	-0.284 *** 0.092	-0.284 *** 0.091
	media	-0.064 *** 0.019	-0.064 *** 0.020	-0.064 *** 0.019
	friend1	-0.204 *** 0.049	-0.200 *** 0.052	-0.204 *** 0.050
	friend2	-0.378 *** 0.060	-0.376 *** 0.064	-0.377 *** 0.061
	fparent	-0.201 *** 0.051	-0.195 *** 0.049	-0.201 *** 0.052
	female	-0.030 0.019	-0.029 * 0.015	-0.030 0.019
	age	-0.001 0.002	-0.001 0.002	-0.001 0.002
	dk	-0.092 *** 0.007	-0.093 *** 0.008	-0.093 *** 0.007
	fi	-0.134 *** 0.020	-0.131 *** 0.024	-0.135 *** 0.019
	fr	-0.400 *** 0.009	-0.396 *** 0.014	-0.400 *** 0.009
	ie	0.061 *** 0.017	0.070 *** 0.025	0.061 *** 0.017
	nl	-0.302 *** 0.003	-0.301 *** 0.003	-0.302 *** 0.003
	se	-0.363 *** 0.007	-0.362 *** 0.009	-0.363 *** 0.007
	cons.	0.491 *** 0.051	0.495 *** 0.052	0.492 *** 0.051
obs.		10027.000	10027.000	10027.000
log pseudolikelihood		-15811.942	-15813.149	-15818.847
rho12		0.187 0.186	0.190 0.187	0.318 *** 0.009
rho13		0.329 *** 0.040	-0.068 0.572	0.360 *** 0.018
rho23		0.486 *** 0.033	0.487 *** 0.035	0.487 *** 0.034

Significance level indicators: *** = 1%, ** = 5%, * = 10%

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rho is the estimated correlation between the error terms from the two equations.

For example, rho12 is rho between the equations for explaining anti and labor.

The reference group is UK males who had neither an immigrant friend (friend0) nor a parent who was born abroad, and who attained the upper secondary or the nontertiary postsecondary level of education (edu2).

Table 5.3 Seemingly unrelated trivariate probit estimates of coefficients

Dependent variable	anti	labor	fiscal
isb	-0.045 0.040	-0.013 0.016	0.050 0.046
unemploy	0.044 0.135	0.022 0.036	0.123 * 0.073
employer	0.479 *** 0.155	-0.038 0.056	0.189 * 0.108
relinc	-0.038 *** 0.009	-0.039 ** 0.017	0.048 *** 0.013
pension	0.075 *** 0.017	-0.062 0.059	0.061 0.092
unempb	-0.191 ** 0.090	0.174 ** 0.088	-0.059 0.164
otherb	0.095 0.123	0.041 0.188	0.008 0.157
edu0	0.343 *** 0.026	0.194 *** 0.028	0.145 ** 0.066
edu1	0.238 *** 0.035	0.095 * 0.050	0.103 *** 0.015
edu3	-0.415 *** 0.092	-0.412 *** 0.030	-0.272 *** 0.098
media	-0.066 *** 0.014	-0.072 *** 0.020	-0.064 *** 0.019
friend1	-0.238 *** 0.038	-0.232 *** 0.051	-0.206 *** 0.052
friend2	-0.486 *** 0.101	-0.508 *** 0.046	-0.384 *** 0.069
fparent	-0.245 *** 0.074	-0.163 *** 0.032	-0.209 *** 0.050
female	-0.013 0.050	0.011 0.048	-0.025 0.024
age	0.003 * 0.001	-0.004 *** 0.000	-0.001 0.001
dk	0.001 0.015	-0.874 *** 0.015	-0.092 *** 0.009
fi	0.216 *** 0.023	-0.361 *** 0.021	-0.133 *** 0.015
fr	-0.025 0.016	-0.191 *** 0.029	-0.396 *** 0.005
ie	-0.468 *** 0.016	0.071 *** 0.012	0.061 *** 0.015
nl	-0.155 *** 0.007	-0.627 *** 0.004	-0.298 *** 0.005
se	-1.012 *** 0.010	-0.925 *** 0.026	-0.363 *** 0.005
cons.	0.046 0.148	0.362 *** 0.024	0.434 *** 0.057
	rho12	rho13	rho23
	0.318 ***	0.360 ***	0.486 ***
	0.010	0.019	0.034
log pseudolikelihood	-15782.660	obs.	10027.000

Significance level indicators: *** = 1%, ** = 5%, * = 10%

Heteroschedasticity-robust standard errors adjusting for intracountry correlation

The reference group is UK males who attained the uppersecondary or the nontertiary postsecondary level of education (edu2) and had neither an immigrant friend (friend0) nor a parent who was born abroad.

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