

**Educated Preferences:  
Explaining Attitudes Toward Immigration in Europe**

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### Abstract

Recent studies of individual attitudes toward immigration emphasize concerns about labor market competition as a potent source of anti-immigrant sentiment, in particular among less-educated or less-skilled citizens who fear being forced to compete for jobs with low-skilled immigrants willing to work for much lower wages. We examine new data on attitudes toward immigration available from the 2003 *European Social Survey*. In contrast to predictions based upon conventional arguments about labor market competition, which anticipate that individuals will oppose immigration of workers with similar skills to their own, but support immigration of workers with different skill levels, we find that people with higher levels of education and occupational skills are more likely to favor immigration *regardless of the skill attributes of the immigrants in question*. Across Europe, higher education and higher skills mean more support for *all* types of immigrants. These relationships are almost identical among individuals in the labor force (i.e., those competing for jobs) and those not in the labor force. Contrary to the conventional wisdom, then, the connection between the education or skill levels of individuals and views about immigration appears to have very little, if anything, to do with fears about labor market competition. This finding is consistent with extensive economic research showing that the income and employment effects of immigration in European economies are actually very small. We find that a large component of the effect of education on attitudes toward immigrants can be accounted for by differences among individuals in cultural values and beliefs. More educated respondents are significantly less racist and place greater value on cultural diversity; they are also more likely to believe that immigration generates benefits for the host economy as a whole. Together, these factors account for around 65% of the estimated effect of education on support for immigration.

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## **I. Introduction**

Political debates over immigration policy have been rising in volume and intensity in recent years in almost all western economies. On the one hand, immigration is seen by many as an economic and cultural lifeline that can supply firms in key industries with skilled workers, relieve strains on tax-funded pension systems threatened by the graying of the local population, and inject new artistic and intellectual life into the nation. On the other hand, there are concerns that immigrants may take jobs away from local workers, subtract more from the government in the form of social services than they give back in taxes, and create ethnic enclaves that balkanize the nation, undermine traditional culture, and lead to crime and other social ills. These latter concerns have encouraged the recent imposition of much tighter immigration controls in several countries while also nurturing the growth of extremist anti-immigrant political movements in many parts of Europe and increasing the incidence of hate crimes directed toward immigrants. The debate seems certain to continue in the years ahead, and grow fiercer.

A great deal of new research has examined survey data on individual attitudes toward immigration, focusing on the determinants of anti-immigration sentiments (e.g., Gang and Rivera-Batiz 1994b; Citrin et al. 1997; Dustmann and Preston 2001). Some of the most recent and prominent studies have concluded that realistic fears about the economic effects of labor market competition among low skilled, blue-collar workers lie at the heart of much anti-immigration feeling (e.g., Scheve and Slaughter 2001a, 2001b; Kessler 2001; Mayda 2004). These studies all rest their analysis upon economic models of the distributive effects of immigration anticipating that low-skilled (i.e. less-educated) native workers will lose out when forced to compete for jobs with low-skilled immigrants (see Borjas 1999a, 1999b). The key supporting evidence for their claims is that opposition to immigration among survey respondents in OECD nations is negatively and significantly associated with individual levels of educational attainment. Viewed from this perspective, the immigration debate is largely about economics, and the primary battle line is the one that separates high-skilled and low-skilled workers.

But this account does not fit well with the growing body of evidence, available from a variety of studies of European and American labor markets, showing that the effects of immigration flows on

income, employment, and unemployment are actually very small (see Bhagwati 2000, 2002; Friedberg and Hunt 1995). Since the most sophisticated economic models are quite equivocal about whether immigrants will have an adverse impact on the wages or employment opportunities of local workers, perhaps these latter results should not be so surprising. But this does raise a big question about how exactly we should interpret the very clear relationship between the education or skill levels among individuals and their views about immigration. One established line of scholarship would regard this pattern *not* as a reflection of labor market dynamics, but instead as confirmation that higher levels of education lead to greater ethnic and racial tolerance among individuals and more cosmopolitan outlooks (e.g., Espenshade and Calhoun 1993; Citrin et al. 1997; McLaren 2001). Viewed in this light, immigration is an issue that raises fundamental questions about values and identities among individuals, debates over immigration are shaped less by labor market competition than by cultural conflict, and the division between more and less-educated natives is primarily a cultural or ideological distinction.

Which of these interpretations is more correct? Is the main motivator for opposition to immigration the threat of economic competition, felt most acutely among the less educated? Or is it a deeper animosity toward foreigners and foreign cultures, felt least strongly among the more educated? The answer to this question is critical to our understanding of the politics of immigration and the treatment of ethnic minorities. It is crucial, too, for policymakers and others who support immigration and worry about the growth of extremist, often violent, anti-immigrant movements. If anti-immigration sentiments are based primarily upon economic calculations, there are some very direct ways in which policymakers might address them: for instance, by targeting forms of adjustment assistance and job creation programs toward the communities or industries in which the economic impact is felt most heavily. If opposition to immigration is motivated by more deep-seated cultural factors, on the other hand, these types of adjustment assistance are unlikely to be effective and it is much more difficult to imagine simple, short-run measures that would mitigate the political tensions.

We examine new data on attitudes toward immigration available from the 2003 *European Social Survey* (ESS). Unlike other sources of survey data on attitudes toward immigrants, the 2003 ESS provides

a rich, detailed set of questions about the immigration issue, probing respondents' views about immigrants from different countries. The detailed data allow us to provide new tests of the labor market competition explanation for anti-immigration sentiments among European voters. We focus, in particular, upon the complex relationship between education and attitudes toward immigration. Our results indicate that, in contrast to predictions based upon the conventional arguments about labor market competition, which anticipate that individuals will oppose immigration of workers with similar skills to their own, but support immigration of workers with different skill levels, people with higher education levels are more likely to favor immigration *regardless of where the immigrants come from and their likely skill attributes*. Across Europe, higher education means more support for *all* types of immigrants. This is true for alternative measures of education in all 22 ESS countries. The same relationship holds for direct (occupational) measures of respondent skill levels: higher skills are associated with greater support for *all* types of immigration. And these relationships are almost identical among those in the labor force and those not in the labor force.

The findings thus suggest that, contrary to the conventional wisdom, the connection between the educational or skill attributes of individuals and their views about immigration appears to have very little, if anything, to do with fears about labor market competition. The conventional story appears to be based on a fundamental misinterpretation of the available evidence. We find that a large component of the effect of education on individual attitudes toward immigrants can be accounted for by differences among individuals in cultural values and beliefs. More educated respondents are significantly less racist and place greater value on cultural diversity; they are also more likely to believe that immigration generates benefits for the host economy as a whole. Together, these factors account for around 65% of the estimated effect of education on support for immigration.

## **II. Explaining Individual Attitudes Toward Immigration**

Which individuals are most likely to oppose immigration? Standard economic models of the income effects of immigration emphasize the importance of the different types of productive factors people own. What is critical in this respect is the impact that immigration has on relative supplies of

factors of production in the local economy. In the most commonly analyzed scenario, it is assumed that immigrants have relatively low skill levels when compared with native workers. Immigration thus increases the supply of low-skilled labor relative to other factors (land, capital, and high-skilled labor). In a simple closed-economy model in which new (low-skilled) immigrants can only price themselves into employment by lowering the wages of native low-skilled workers; as more low-skilled labor is applied to fixed amounts of the other factors, the real wages of the less skilled will decline while the earnings of owners of land, capital, and skills will rise.<sup>1</sup> This model of the impact of immigration is often referred to as “factor-proportions” (FP) analysis (see Borjas et al. 1996, 1997; Borjas 1999a). It renders the distributive effects of inflows of low-skilled immigrants in stark terms: native low-skilled workers are clearly the economic losers. Of course, if immigrants were *high*-skilled (rather than low-skilled) workers the effect of the inflows would be to lower real wages for native *high*-skilled workers and to raise real earnings for all others (including low-skilled workers).

There has been a good deal of research on public attitudes toward immigration that has looked for signs that economic concerns related to job security do lie behind anti-immigrant sentiments, with mixed results (e.g., Studlar 1977; Harwood 1986; Simon 1987; Gang and Rivera-Batiz 1994b; Citrin et al. 1997; Burns and Gimpel 2000; Fetzer 2000; Dustmann and Preston 2001). But several recent studies have set out explicitly to test the proposition that a fear of lower wages induces low-skilled individuals, in particular, to oppose immigration. Most prominently, Scheve and Slaughter (2001a, 2001b) have examined data from *National Election Studies* (NES) surveys in the United States in 1992, 1994, and 1996, that asked respondents about their preferences regarding immigration restrictions. They found that individuals with lower skills, measured primarily by years of education, were far more likely to support

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<sup>1</sup> Standard models assume full employment and wage flexibility, so that the distributional effects are reflected in wages. In models that permit labor market imperfections, these effects can also take the form of changes in local unemployment rates (see Razin and Sadka 1995; Angrist and Kugler 2002). Alternative models also allow for geographic differences within national labor markets so that the wage and employment effects of immigration may be concentrated in “gateway communities” where immigrants tend to settle in large numbers (see Borjas 1999a, 10-11). For empirical work along these lines, see Card 1990; Butcher and Card 1991; LaLonde and Topel 1991.

restrictions on immigration than those with higher skills.<sup>2</sup> Mayda (2004) reached similar conclusions after examining cross-national survey data on 23 nations from the 1995 National Identity Module of the *International Social Survey Programme* (ISSP), as well as data on 44 nations from the third wave of the *World Value Survey* (WVS), conducted between 1995 and 1997. She reports that respondents with higher levels of skill (again, measured by years of education) are much more likely to voice pro-immigration opinions than those with lower levels of skill.

There are several reasons to be very cautious about how we interpret these findings. One issue is whether immigration, in practice, has actually had the distributional effects anticipated by the standard closed-economy models. A growing set of empirical studies dedicated to this question has found only very small wage and employment effects attributable to immigration flows into European and American labor markets (see Bhagwati 2000, 2002; Friedberg and Hunt 1995).<sup>3</sup> In part this may be because there appears to be a great deal of variation in the skill levels of immigrants, and there is considerable debate now over whether immigrants actually tend, in general, to have low levels of skills relative to native workers.<sup>4</sup> To varying degrees, of course, the immigration policies in many western countries are actually aimed at selecting candidates for entry based upon the quality of their skills, and excess local demand for those skills (see Bauer et al. 2000).<sup>5</sup>

More fundamentally, the most sophisticated economic models are actually quite equivocal about whether immigrants will have an adverse impact on the wages or employment opportunities of local workers with similar skills (see Friedberg and Hunt 1995). In an open-economy Heckscher-Ohlin (HO)

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<sup>2</sup> See also related work using NES data from surveys between 1992 and 2000 by Kessler 2001.

<sup>3</sup> For evidence on the impact of immigration in European labor markets, see Zimmerman 1995, Hunt 1992, DeNew and Zimmerman 1994, Winkelmann and Zimmerman 1993, Hartog and Zorlu 2002, and Dustmann et al 2004. Evidence on immigration effects on wages in the United States is discussed in Card 1990, Card 2004, Gang and Rivera-Batiz 1994a, Borjas et al 1997, and Borjas 1999a.

<sup>4</sup> Angrist and Kugler (2002, 16) report “considerable overlap between the immigrant and native schooling distributions” for 13 European countries in 1995 and 1999. Borjas et al. (1997) and Borjas (1999a) present evidence from U.S. *Census* data indicating that, on average, immigrants to the United States had approximately two fewer years of education than natives in 1998. According to Bhagwati (2002, 310), however, the evidence of a large native vs. immigrant skill difference is less clear judging from data from the *Immigration and Naturalization Service*.

<sup>5</sup> This might be one reason why, in an excellent study using data from the *British Social Attitudes Survey*, Dustmann and Preston (2001) found that concerns about job security and opposition to immigration were only related among respondents with *high* levels of skills and education. They could find no strong evidence that labor market concerns among unskilled workers had anything to do with individual opposition to immigration.

model, trade can offset the impact of immigration as an economy adjusts to any change in factor supplies by importing less of the goods that can now be produced locally at a lower cost (see Appendix I for a formal discussion of the open-economy models). Again assuming low-skilled immigrants, it is possible that an economy can absorb new workers simply by altering the mix of output of tradable goods, increasing production of low-skill-intensive goods and decreasing production of other goods (in line with the Rybcynski theorem). Wages will not change at all if the local economy is small enough that a change in its output mix has no effect on world prices – a result known as “factor price insensitivity” (Leamer and Levinsohn 1995). There are two possible exceptions. If the local economy is very large relative to the rest of the world, of course, the change in output mix can produce a decline in the world prices of low skill-intensive goods and a subsequent decline in the real wages of low-skilled labor. But this result does not seem applicable for the individual European countries. Alternatively, if the inflow of immigration is itself very large, it might induce a change in the set of tradable products that the local economy produces, thus causing a decline in the real wages of low-skilled labor. Yet this also seems like an extreme result, and not one that could be a reasonable basis for calculations about the effects of immigration in most European nations.

The theoretical picture looks no clearer if we allow that the skills of workers can be highly “specific” to particular industries – the standard approach taken in most theoretical recent work on international trade (see Jones 1971; Grossman and Helpman 1994). If all goods are traded, so that prices are fixed in world markets, it can be shown that inflows of low-skilled workers will indeed lower real wages for low-skilled natives, while raising real wages for high-skilled workers in all industries (the latter benefits will be larger for high-skilled workers in sectors that use low-skilled labor more intensively). On the flip side, inflows of *any* type of high-skilled workers will raise real wages for low-skilled workers while lowering real wages for *all* high-skilled workers (the latter losses being larger for those who own the very same specific skills as the immigrants). While these distributive effects match the predictions generated by the simple closed-economy FP model, they are overturned with the inclusion of non-traded goods in the model. If immigration can lead to a reduction in the price of non-traded goods (i.e., if it



raises the output of such goods more rapidly than it raises aggregate demand for them), it is unclear whether native workers with skills similar to those of immigrants will be worse off in real terms (the outcome will depend in part on their consumption tastes). And the effects of immigration inflows on real earnings are similarly ambiguous in the specific-factors model when the country in question is large relative to world markets (see Appendix I).<sup>6</sup>

Other types of general equilibrium models raise more doubts about the impact we should expect immigration to have on the wages of similarly skilled native workers. If we allow for economies of scale in production in the industries employing immigrants, inflows of new workers can be shown to generate *higher* real wages for native workers with similar skills in an open-economy model (see Brezis and Krugman 1993). And if we treat immigration inflows as a component in the growth of the labor supply, in a fully-specified *dynamic* model of the economy, the impact of such flows on wages over time will depend on the rate of capital accumulation and population growth (and how these are also affected by immigration) – a point noted by Bhagwati (2000). All in all, it is extremely difficult to make firm predictions about the equilibrium effects of immigration on wages and employment opportunities among local workers.<sup>7</sup>

If the economic impact of immigration is actually quite small, as both theory and empirics tend to suggest, then what explains the strong negative association between education and anti-immigration

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<sup>6</sup> Note that, while we have concentrated on the labor-market effects here, there is also considerable debate over the impact of immigration on government spending and tax revenues. One common concern is that low-skilled immigrants, since they tend to earn less and thus pay less in taxes than native, and since they are more likely to draw unemployment and other welfare benefits from government, are a net drain on government coffers. Economists are divided on whether this is actually the case (see Krugman and Obstfeld 2000: 166). Notice, however, that to the extent it *is* true, since the added tax burden of immigration would fall disproportionately upon richer, more highly skilled native workers, these distributional effects would run counter to (and thus mitigate) the types of distributional wage effects emphasized in closed-economy FP models of labor market competition.

<sup>7</sup> One might simply suggest that the *actual* economic effects of immigration are less relevant than people's *perceptions* of the effects. Perhaps stories reported by the media or statements made by politicians lead people to believe that immigration poses a larger economic threat to blue-collar workers than it actually does (see Gang et al 2002, 7; also Citrin et. al 1997, 859). But this type of assertion would require empirical verification and some explanation for why perceptions would diverge very far from reality. If the claim is simply that the less educated are more susceptible to anti-immigrant messages or issue framing than more educated individuals, then this would just seem to become a version of the (non-economic) argument linking low education levels to racist or xenophobic outlooks (discussed in more detail below). We discuss these issues again in Section VII, and argue that perceptual distortions of the economic threat posed by immigration are not a plausible explanation for the results from our analysis of the available survey data.

sentiments? One clear explanation is provided by theories that relate education to higher levels of ethnic and racial tolerance among individuals and to a preference for cultural diversity. This is an interpretation favored by many scholars who have made note of the connection between education and individual support for immigration (e.g., Betts 1988; Espenshade and Calhoun 1993; Espenshade and Hempstead 1996; Citrin et al. 1997; Fetzer 2000; Chandler and Tsai 2001; Gang et al. 2002). There is a large literature showing that education tends to socialize students to have more tolerant, pro-outsider views of the world (e.g., Campbell et al. 1960, 475-481; Erikson, Luttbeg, and Tedin 1991, 155-6; McClosky and Brill 1983; Schuman, Bobo, and Steeh 1985). As Gang et al. (2002, 13) note, most western educational systems are designed quite explicitly to increase social tolerance. And Chandler and Tsai (2001) point out that education fosters tolerance, not just by increasing students' knowledge of foreign cultures and raising levels of critical thinking, but also by generating more diverse and cosmopolitan social networks, especially at the college level (on this point see Case et al. 1989; and Allport 1954). On a related theme, Betts (1988) has argued that support for immigration among the college-educated is one aspect of a larger class identity associated with cosmopolitanism and an appreciation for diverse cultures.

Besides tolerance and support for cultural diversity, of course, there are a variety of other non-economic variables that have been identified as predictors of attitudes toward immigrants (and which are not so closely connected to education levels). Age tends to be negatively associated with support for immigration, for instance, and women seem generally more opposed to immigration than men (Citrin et al. 1997; Dustmann and Preston 2000; Gang et al. 2002). Children of foreigners are predictably more supportive of immigration, as are members of minority ethnic groups (Citrin et al. 1997; Chandler and Tsai 2001). The latter finding would appear to support claims that members of marginalized groups often form common political bonds (Espenshade and Calhoun 1993; Betz 1994). Meanwhile, individuals with right wing or conservative political ideologies, and those evincing more national pride, are generally more likely to oppose immigration (Chandler and Tsai 2001). Anti-immigration sentiment in Europe seems to be more intense in communities where immigrants are concentrated, suggesting that more contact with immigrants or perceived strains on locally provided government services foster nativist feelings (Gang et

al. 2002). We attempt to account for all of these possibilities in the empirical analysis below.

### **III. New Data from the *European Social Survey***

We draw our data from the fifth edition of the recently administered *European Social Survey* (see Stoop et al. 2002).<sup>8</sup> The survey covers 22 European countries: Austria, France, Norway, Sweden, Finland, Britain, Belgium, Ireland, the Netherlands, Denmark, Germany, Italy, Luxembourg, Switzerland, Greece, Spain, Portugal, Israel, Czech Republic, Hungary, Poland, and Slovenia. It consists of answers of up to 42,000 respondents to an hour-long questionnaire, with an average country sample of about 2,000 respondents. The broad coverage provides substantial cross-national variation in social, political, and economic contexts. The stratified random sample was designed to be representative of the residential population of each nation, aged 16 years and above, regardless of their nationality, citizenship, or legal status.<sup>9</sup>

The questionnaire consists of a “core” module that contains a large range of socio-economic and demographic questions and several rotating, topic-specific modules, one of which focuses on the issue of immigration. Our primary empirical tests involve individual responses to a set of questions taking the following form:

*To what extent do you think [respondent's country] should allow people from [source] to come and live here?*

- Options:
- |   |   |
|---|---|
| 1 | <i>Allow many to come and live here</i> |
| 2 | <i>Allow some</i>                       |
| 3 | <i>Allow a few</i>                      |
| 4 | <i>Allow none</i>                       |
| 8 | <i>Don't know</i>                       |

There are four different versions of this question in which the *source* of the immigrants is identified alternatively as:

- a. ... the richer countries in Europe*
- b. ... the poorer countries in Europe*
- c. ... the richer countries outside Europe*
- d. ... the poorer countries outside Europe*

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<sup>8</sup> A detailed description of the survey can be found at <http://www.europeansocialsurvey.org>.

<sup>9</sup> The majority (55%) of the questionnaires were administered in face-to-face interviews. For a full discussion of the EES methodology, see Stoop et al. 2002.

For each of the questions we created a dichotomous variable that equals 1 (pro-immigration) if the answer was “allow many” or “allow some” and 0 (anti-immigration) if the answer was “allow a few” or “allow none.”<sup>10</sup> The dichotomous dependent variables just allow a simpler and more intuitive summary of the basic results (we discuss the substantively similar results obtained using categorical dependent variables in the sensitivity analysis in section VI below).

The crucial advantage gained from examining this ESS data, compared to data from alternative surveys used in previous research, is that separate questions have been posed about specific categories of immigrants that are likely to have very different skill characteristics. These distinctions allow for a much more direct test of the arguments about labor-market competition. Prior studies have rested on the assumption that respondents must always have low-skilled immigrants in mind when answering a general survey question about immigration.<sup>11</sup> Here we can assume that respondents will have very different expectations about the average skill levels of immigrants from “richer” countries than those from “poorer” countries. The questions were asked consecutively in the survey, making it very clear to respondents that “richer” versus “poorer” was the critical difference – a difference that is most obviously meaningful as it bears upon the expected skills levels of immigrants. Respondents are more likely to associate immigrants from the richer nations with higher-skilled individuals (e.g., professional and managerial employees from Germany, France, Britain, and the United States), while associating immigrants from poorer nations with lower-skilled individuals (e.g., manual workers and refugees from eastern and southern Europe and from Africa). This set of expectations seems intuitively compelling, but we can also verify that it is empirically very accurate. Immigrants from richer nations *do* have higher skills, on average, than immigrants from poorer nations.

To verify this we examined evidence on the skill levels of immigrants compiled in the *International File of Immigration Surveys* (IFIS) database by van Tubergen (2004). This database

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<sup>10</sup> We excluded the few “don’t know” and missing answers from the sample. Including these observations as either pro- or anti-immigration answers does not change any of the substantive results we report since only 4-5% of the answers to each question fall in this category. Results from these sensitivity tests are available from the authors.

<sup>11</sup> Cf. Scheve and Slaughter 2001a, 135.

combines survey data on more than 300,000 immigrants from 180 countries of origin and 18 destination countries, extracted from the European Union's *Labour Force Survey*, national censuses, and additional country-specific immigrant surveys.<sup>12</sup> For the European destination nations the IFIS provides data on immigrants from 51 origins: 26 European and 25 non-European countries.<sup>13</sup> The data include codes for whether the individual immigrants had low, middle, or high levels of educational attainment (these correspond, respectively, to whether the person had completed primary or basic schooling, upper secondary schooling, or tertiary education).<sup>14</sup> For each of the 51 origin countries we were thus able to compute the proportion of immigrants to Europe in each education category. As expected, we found that the proportion of low (high) skilled immigrants is sharply decreasing (increasing) in origin country GDP per capita. In the case of immigrants from European origins, the correlation between origin GDP per capita and the proportion of low (high) education immigrants is -0.22 (0.16). This pattern is even more pronounced for immigration from non-European origins, where the respective correlations are -0.49 and 0.72. Parsing the data another way, if we take the average per capita GDP among origin countries in each sub-sample (i.e., European and non-European) as the dividing line between "richer" and "poorer" countries, the skill differences among immigrants from each category are substantial. For instance, the proportion of immigrants from poorer non-European countries that have low (high) educational levels is 0.50 (0.21), compared to 0.21 (0.48) for immigrants from richer countries. The differences between the skill levels of immigrants from richer and poorer nations are stark.

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<sup>12</sup> All surveys were harmonized and pooled by van Tubergen into a cross-national data set that provides comparable individual-level information on immigrants, classified by country of origin, for the period 1980-2001. To our knowledge this represents the most comprehensive data set on immigrant populations currently available. We are deeply indebted to Frank van Tubergen for allowing us to examine this data. By agreement with him, we only present highly aggregated results of our analysis of the IFIS data here.

<sup>13</sup> The 14 European destination nations in the IFIS database are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the UK. In addition to these 14, the European origin countries included Albania, Bulgaria, Ex-Czechoslovakia, Ex-Yugoslavia, Hungary, Iceland, Italy, Malta, Norway, Poland, Romania, and Switzerland. The non-European origin nations are Algeria, Argentina, Australia, Brazil, Cambodia, Canada, China, Cyprus, Egypt, Ex-Russia, India, Indonesia, Japan, Lebanon, Mexico, Morocco, New Zealand, Pakistan, Philippine, South Africa, Thailand, Tunisia, Turkey, the US, and Vietnam.

<sup>14</sup> These categories match the *educational attainment* measure in the ESS data that we employ below with the exception that van Tubergen also includes Phd's in the high education category rather than coding them separately.

Thus, if concerns about labor-market competition are critical determinants of immigration preferences we should expect respondent skill levels to be *positively* related to pro-immigration answers to the ESS questions addressing immigrants from *poorer* countries, since these are predominantly low-skilled immigrants who compete for jobs with low-skilled natives. This is in line with the proposition tested in previous studies. But now we can also expect individual skill levels to be *negatively* related to pro-immigration responses to the ESS questions asking about immigrants from *richer* countries, since these are predominantly high-skilled immigrants who are substitutes (rather than complements) to native workers with high skills. This is a simple, critical test for the labor-market competition account of anti-immigration sentiments.

A summary of the ESS data on immigration preferences is reported in Table 1.<sup>15</sup> On average, survey respondents prefer European immigrants to non-Europeans (holding wealth constant), as perhaps we might expect, and they prefer immigrants from richer countries to those from poorer countries (holding “European-ness” constant).<sup>16</sup> The most preferred immigrants are thus those from richer European nations; the least preferred are from poorer countries outside Europe. Many different forces may be shaping these general preferences, of course, but it is interesting to note that they clash rather directly with a simple labor market competition story in at least one very clear way: since the average ESS respondent is presumably more highly skilled than the average immigrant from poorer countries inside Europe, but has an even greater skill advantage over the average immigrant from poorer countries *outside* Europe, the distributional effects (on their own) would imply that the latter should be *more* preferred than the former on average.

[Table 1]

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<sup>15</sup> Following the official ESS recommendation, we applied the design weight (DWEIGHT) to all estimations that examine single countries (all country specific averages and probit estimations) and both the design weight and the population weight (PWEIGHT) to all estimations where data is pooled across countries (full sample averages and probit estimations). Since STATA 8.2 (the software used for all estimations here) allows for only one weight at a time, we followed the ESS guidelines and specified an aggregate weight (PDWEIGHT = DWEIGHT\*PWEIGHT) when the combined weights were needed. See the ESS guidelines “Weighting European Social Survey Data” at <http://ess.nsd.uib.no/2003/WeightingESS.pdf> (retrieved 02/15/04).

<sup>16</sup> Difference-of-mean tests indicate that these differences for both the Europe vs. outside comparisons and for both of the rich vs. poor comparisons are highly significant (the lowest *t*-value in the four tests is 8.98), although the substantive differences are of course rather small.

Table 2 reports immigration preferences by country of respondent. Here we just provide the mean of each dichotomous dependent variable (indicating whether respondents supported immigration from each different source), and we have ranked the ESS countries according to per capita GDP. Overall, Sweden seems to be the most pro-immigrant country across the board, while Hungary is the most anti-immigrant. Interestingly, respondents in Germany and Italy, nations often regarded as fertile soil for chauvinism and anti-foreigner movements (such as the *Republikaner* and the *National Democratic Party* in Germany or the *Lega Nord* in Italy), appear to look more favorably upon immigration, in general, than citizens in many other European nations. Other countries yield less of a surprise as for example Austria, with its strong right wing party (the *Freiheitlichen*), shows rather low support for immigration. Another interesting result is that respondents in Denmark appear to differentiate most strongly between types of immigrants, preferring “rich” over “poor” immigrants by larger margins than respondents elsewhere (given the recent success of the right-wing *Folkeparti* in Denmark, campaigning largely on opposition to poor immigrants, perhaps this should not be surprising).

[Table 2]

The general pattern in preferences is again rather inconsistent with the labor market competition argument. Assuming the skill level of the average respondent is increasing in per capita GDP across these countries, we should expect that (average) attitudes would become markedly less supportive of immigration from richer vs. poorer nations at higher levels of per capita GDP. While it does seem to be the case that the preference for immigrants from richer vs. poorer nations is largest in ESS countries with the lowest levels of per capita GDP, that same preference still appears in many of the most developed ESS countries (e.g., Luxembourg, Denmark, Italy, UK, Germany, Finland, etc.). In fact, in all countries except Sweden, the Netherlands, Norway, and Switzerland, richer immigrants are preferred to poorer ones or people (on average) are essentially indifferent between the two.

Previous studies of opinion data on immigration have typically been severely constrained by the absence of good measures of key variables and theoretically relevant controls, since the surveys generating the data were not focused explicitly upon the immigration issue. The ESS allows us to

overcome these problems to a substantial degree, since it provides multiple measures of a wide array of critical socioeconomic, demographic, and attitudinal variables. In the next sections we incorporate a large variety of these variables when estimating the probability of support for different types of immigration among individual survey respondents. Our principal goal, which we address immediately in the next section, is to provide a rigorous new set of tests of the labor market competition explanation for anti-immigration sentiments. We also investigate alternative explanations of attitudes toward immigration that focus upon cultural conflict.

#### **IV. Labor Market Competition and Anti-Immigration Views?**

##### *A. Benchmark Model*

To provide a basic test of the conventional labor market competition argument, we begin by estimating a series of probit models for the dichotomous dependent variables described above (indicating support for immigration from different types of source countries), and we test for the effects of different measures of individual skill levels. We employ the two indicators of individual levels of education that have been applied as proxy measures of individual skill levels in previous studies: the first measure, *years of schooling*, simply counts the total number of years of full time education completed by the respondent; the second measure, which we label *educational attainment*, is a categorical indicator of the highest level of education attained by the respondent, adjusted by the ESS to allow for differences between the various European educational systems so that the results are comparable across countries.<sup>17</sup> (See Appendix II for complete descriptive statistics for all variables described here and used in the analysis).

We include the standard socioeconomic and demographic control variables in an otherwise streamlined “benchmark” model. These variables include the respondent’s *age*, (in years), *gender* (1=female, 0=male), and *income* (measured on a categorical scale from 1 to 12).<sup>18</sup> We include whether the respondent is a *native* of his or her country of residence (1=born in country; 0=foreign born), for obvious

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<sup>17</sup> The coding is: 0=Not completed primary education; 1=completed primary or first stage of basic education; 2=Completed lower secondary or second stage of basic education; 3=completed upper secondary; 4=post secondary, non-tertiary; 5=first stage of tertiary; and 6=completed second stage of tertiary education.

<sup>18</sup> The coding for income is: 1=less than 150 Euro monthly; 2= 150-300 Euro; 3=300-500; 4=500-1000; 5=1000-1500; 6=1500-2000; 7=2000-2500; 8=2500-3000; 9=3000-5000; 10=5000-7500; 11=7500-10000; 12=>10000.



reasons. To account for “neighborhood” effects, we include a measure of how many *immigrant friends* a respondent has (1=none, 2=a few, 3=several),<sup>19</sup> and also a measure of how many people of a minority race or ethnic group are living in the area where the respondent currently resides, which we refer to as *minority area* (1=almost nobody, 2=some, 3=many).<sup>20</sup> In addition, since far-right parties in Europe have typically been the most vocal opponents of immigration, we also account for the *right partisan* political orientation of each respondent (measured on a scale from 0=left to 10=right).<sup>21</sup> Each of the estimations also includes a full set of country fixed effects.<sup>22</sup> The results for the simple, benchmark model are displayed in Table 3. To facilitate interpretation, rather than showing estimated coefficients, we report estimated marginal effects; i.e., the change in the probability of being pro-immigration associated with an infinitesimal change in each independent variable (for dichotomous variables the discrete change in the probability is shown).

[Table 3]

Recall that, if the labor market competition effects are critical determinants of immigration preferences, and education measures respondent’s skill levels, then education should be *positively* related to support for immigration from *poorer countries*, but *negatively* associated with support for immigration from *richer countries*. The critical finding from the estimations of the benchmark model is that, contrary to these expectations, people with higher education are more likely to favor immigration *regardless of where the immigrants come from*. The estimated effects of education are always statistically significant and quite large in magnitude across all the dependent variables. For example, a shift from the lowest to

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<sup>19</sup> This measure is based on the question: “Do you have any friends who have come to live in [respondent’s country] from another country?” The answers are originally coded: 1=Yes, several; 2=Yes, a few; 3=No, none at all. We have recoded these along more intuitive lines.

<sup>20</sup> This is based on the question asking respondents: “How would you describe the area where you currently live?” Answers are coded: 1=almost nobody (of minority race or ethnic group), 2=some, 3=many.

<sup>21</sup> The ESS question is: “In politics people sometimes talk of ‘left’ and ‘right.’ Using this card, where would you place yourself on this scale?” The answers are coded on a scale from 0 (left) to 10 (right). A potential problem with this variable is that what means “left” and “right” in the Britain might differ markedly from what those same terms mean in, say, Poland. None of our substantive results are affected by the inclusion or exclusion of this control, however, as we discuss in sensitivity analysis (see section VI below).

<sup>22</sup> We estimate all models using robust standard errors, adjusted for potential within-region clustering. We also re-estimated all models clustering standard errors by countries only, and the results are substantively identical and available upon request.

the highest level of educational attainment increases the predicted probability of favoring immigration from poorer European (non-European) countries by 0.31 (0.33) holding all other variables at their sample means. The corresponding effect is even slightly larger for immigration from richer European (non-European) countries, with the increase in educational attainment raising the predicted probability of support for immigration by 0.32 (0.33). These results raise serious questions about the importance of labor market considerations in shaping individual attitudes toward immigration. The evidence fits much better with alternative accounts that relate the effects of education on support for immigration to greater tolerance and improved understanding of foreign cultures and a taste for cosmopolitanism and cultural diversity, and expect that such effects are *always* positive.

The estimated marginal effects of the control variables are significant at the .99 confidence level in the majority of cases and enter the model with signs anticipated based upon previously reported findings. The respondent's *age* generally has a negative, yet not terribly robust, effect on support for immigration,<sup>23</sup> for instance, while having a higher *income* makes an individual significantly more likely to favor immigration, as does having *immigrant friends*. Living in a *minority area* increases the probability of favoring immigration from poorer, but not from richer countries. Foreign-born respondents are somewhat more likely than their *native* counterparts to favor immigration although against this effect is not very robust. People with more *right partisan* political orientations are more likely to oppose immigration in general, and this effect is stronger (and more robust) when it comes to immigrants from poorer versus richer countries. The only variable that has an entirely different impact on attitudes toward immigration from rich countries versus poor nations is *gender*. Women are significantly more likely than men to *oppose* immigrants from richer countries, but are significantly more likely than men to *support* immigration from poorer countries (although these coefficients are only flirting with conventional levels of significance in some cases). Again this seems to provide evidence inconsistent with a simple job competition account of attitudes toward immigration. Women respondents tend to have lower skill levels

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<sup>23</sup> Following Dustmann and Preston (2001) we also experimented with a second order polynomial term here. We found some indication that the age effect may indeed be weakly U-shaped. However, this effect was so small that we excluded it from the benchmark model. Adding it does not change any of our results.

than men, on average, in the European economies: the average number of years of schooling among men in the ESS sample is 12.1, compared to 11.5 for women. Even controlling for formal education qualifications, female workers tend to be under-represented in higher-skilled occupations (see Estevez-Abe, Iversen, and Soskice 2001). If labor market motivations were really critical here in shaping attitudes toward immigration, we would expect just the opposite of what we have found: that is, that women would be more *opposed* to (low-skilled) immigrants from poorer countries than men, and more *supportive* than men of (high-skilled) immigrants from richer countries.<sup>24</sup>

### *B. Country-Specific Estimations*

One possible objection to the analysis of the benchmark model above is that it does not allow that the effects of individual skill levels on immigration preferences might vary with national factor endowments (i.e., the local abundance of skilled relative to unskilled labor). The ESS data is extensive enough that we can address this issue very directly: we can estimate a full series of country-specific models of immigration preferences and obtain quite precise estimates of the effects of education on attitudes in each of the 22 individual ESS countries. Table 4 summarizes the results from these estimations. It reports the marginal effects for *years of schooling* and *educational attainment* when the benchmark model is estimated using responses to the immigration questions in each ESS country.<sup>25</sup> The countries are again ranked according to levels of GDP per capita to provide for easy comparisons across countries with different factor endowments.

[Table 4]

If labor market competition is a critical determinant of attitudes toward immigration we should expect the positive effect of respondent skill levels on support for immigration from *poorer* countries to be larger in magnitude in ESS countries with higher levels of GDP per capita (i.e. those with greater skill

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<sup>24</sup> The female preference for immigration from poorer nations may be driven by feelings of compassion for poorer migrants that are felt more acutely by women than by men. On the other hand, some commentators have suggested that it may reflect greater demand for (low-skilled) household help. We have experimented with a gender-income interaction term in hopes of testing this “household help” proposition, finding that, contrary to what it presumably implies, the gender gap in preferences toward immigrants does not vary significantly across levels of income.

<sup>25</sup> Full statistical results from all country-specific regressions are available from the authors.

abundance), since the standard models suggest that any distributional effects associated with inflows of low-skilled labor should be larger where low-skilled labor is more scarce. But we should also expect the negative effect of individual skill levels on support for immigration from *richer* countries to be smaller in magnitude in ESS countries with higher levels of GDP per capita, since the distributional impact of high-skilled immigration will be smaller where skills are more abundant. The findings contradict these expectations. Most importantly, all (that is, 176 out of 176) of the estimated marginal effects of the education variables are *positive*. Of the effects, all but 19 (that is, almost 90%) are statistically significant, most of them at the .99 level, and most are quite large in terms of their effects on the probability of support for immigration.<sup>26</sup> For example, in the case of immigration from richer European countries the increase in the predicted probability of being pro-immigration associated with a change from the lowest to the highest level of educational attainment ranges from 0.14 in Greece to 0.53 in the UK. The central message here is that, among individuals across Europe, more education means more support for *all* types of immigration.

The job competition argument fares no better when we examine variation in the magnitude of the education effects across the ESS countries. Figure 1 plots the marginal effect of education on immigration preferences in each country against per capita GDP.<sup>27</sup> While the size of the marginal effect of education on support for immigration from *poorer* nations rises with GDP per capita, as expected, the “incorrect” *positive* effect of education on support for immigration from *richer* nations also rises with GDP per capita and even more rapidly.<sup>28</sup> High-skilled individuals favor high-skilled immigrants more than do low-skilled

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<sup>26</sup> The last row in the table counts the number of significant coefficients if the *income* variable, the central bottleneck in terms of number of observations for most countries, is replaced by a variable measuring satisfaction with the current level of household income. The latter variable yields on average about 20-40% more observations per country. (The question reads: “Which of the descriptions on this card comes closest to how you feel about your household’s income nowadays?” Coding: 1=Living comfortably on present income; 2=Coping on present income; 3=Finding it difficult on present income; 4=Finding it very difficult on present income). According to this specification, even 165 or 94% of the estimated marginal effects are significant at conventional levels, due to the larger number of observations.

<sup>27</sup> Here we follow the approach used by Mayda (2004), who argued that the positive association between the size of the education effect and GDP per capita across countries supported the job competition account.

<sup>28</sup> The correlation between the magnitude of the education effect (based on educational attainment) and GDP per capita is 0.26 (0.21) in the case of immigration from richer European (non-European) countries. These correlations increase to 0.44 (0.47) if the GDP per capita outlier Luxembourg is excluded from the sample. The respective

respondents, and this difference is more pronounced in more skill-abundant economies. As the scissoring of the lines of best fit in Figure 1 show, education has a larger marginal effect on support for low-skilled rather than high-skilled immigration in the most skill-scarce economies, and the reverse in the most skill-abundant economies, a pattern that makes no sense at all in terms of the labor competition account.<sup>29</sup>

[Figure 1]

### *C. Alternative Measures of Individual Skill Levels*

Perhaps using education as a general indicator of labor market skills, rather than more specific measures related to the occupations of individual respondents, creates a problem for tests of the labor market competition argument? We can address this concern by substituting the measures of education we have used above with alternative measures of skills. The most straightforward approach involves using the occupations of currently employed respondents – coded by ESS according to the International Labour Organization’s *ISCO88* classification scheme – to distinguish individual skill levels. The *ISCO88* scheme groups specific occupations into four skill categories: (1) elementary occupations or manual labor; (2) plant and machine operators and assemblers, craft and related trades workers, skilled agricultural and fishery workers, service workers and shop and market sales workers, and clerks; (3) technicians and associate professionals, and; (4) professionals. We follow O’Rourke and Sinnott (2001) in using the *ISCO88* occupational codes to identify a fifth skill category – legislators, senior officials and managers – that presumably includes only highly skilled individuals.<sup>30</sup> Again following O’Rourke and Sinnott (2001), we first use these categories to create a dichotomous skill variable, called *skill345*, that provides a basic distinction between high and low-skilled workers (1=*ISCO88* category 3, 4, or 5; 0=*ISCO88* category 1 or

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correlations for immigration from poorer European (non-European) countries are 0.07 (0.11) for the full sample and 0.22 (0.30) excluding Luxembourg.

<sup>29</sup> In section VII we briefly discuss possible explanations for the cross-national variation in the effects of education on attitudes toward immigration. One obvious possibility is that education differs in political content across nations in ways that matter for immigration policy preferences.

<sup>30</sup> The few (179) members of the armed forces are excluded since no *ISCO88* skill level is defined for this group.

2).<sup>31</sup> We also create a full set of dummy variables, *skill\**, indicating whether the respondent fits into the particular *ISCO88* skill category (1= skill category \*; 0=otherwise).

[Table 5]

Table 5 reports the results when we re-estimate the benchmark model, substituting the measures of education with *skill345* and then with the four *skill\** dummy variables. Again, the results run counter to what a job competition account would expect. Higher skills are robustly associated with greater support for *all* types of immigration regardless of whether we use the dichotomous variable or the individual skill dummies. If we estimate the effect of skill level (based on *skill345*) for individual countries the results are the same: in all but one case (Portugal, in the case of immigration from richer non-European countries) the high skill variable has a positive effect on support for *all* types of immigration (83 of 84 coefficients are positive<sup>32</sup>) and in most countries this effect is statistically significant despite the decreased number of observations (76% of the coefficients are significant).<sup>33</sup>

We get substantively identical results if we include measures of education and (occupational) skill levels in the *same* estimates. These measures are strongly correlated, as expected, but they are not identical: the pair-wise correlation between *years of schooling* and *skill345* is 0.47, while the correlation between educational attainment and *skill345* is 0.52. The correlation breaks down in the higher skill categories, as a considerable number of people with low levels of formal education possess jobs classified as high skilled (e.g., managers without university degrees). The results from the amended form of the benchmark model are shown in Table 6. Both *skill345* and *educational attainment* seem to have separate (positive) effects on support for immigration, as both variables are highly significant predictors across all

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<sup>31</sup> Note that this is the same variable Mayda (2004) used in her analysis of the ISSP survey data. Rather than using occupational distinctions themselves, Scheve and Slaughter (2001a) tried a measure of the average wage for each respondent's occupation (assuming average wages reflect skill levels) in place of education.

<sup>32</sup> Note that France must be omitted here, because no occupational data is available. That is why we end up with 21 countries and thus 84 coefficients.

<sup>33</sup> If we estimate this skill effect after replacing the personal income variable with the alternative household income measure (see fn. 26), increasing the sample size markedly for these country-specific models, the skill variable has a positive impact in all countries (84 of 84 estimated coefficients are positive) and in 84% of cases the effect is statistically significant. The plots of the estimated effects of a change in *skill345* against GDP per capita is almost identical to against those shown for education effects in Figure 1: the "incorrect" *positive* effect of skills on support for immigration from *richer* nations rises with GDP per capita (even more rapidly than the effect of skills on support for immigration from *poorer* nations). Full results are available from the authors.

models.<sup>34</sup> Including the skill variable leaves the positive effect of education substantively unaffected. The education effect appears to be much larger in substantive terms than the skill effect in all models. For example, in the case of immigration from richer (poorer) European countries, a change from the lowest level of educational attainment to the highest (with all other variables at the means) raises the probability of being pro-immigration by 0.28 (0.28). The corresponding effect when changing from low to high skills is only 0.08 (0.07). Interestingly, compared to the models without *skill345*, the magnitude of the education effect in these combined models decreases only very slightly. Thus, again for immigration from richer (poorer) non-European countries, only about 12.5% (9.7%) of the more general education effect appears to be accounted for by skill differences (the total uncontrolled education effect decreases by 0.04 (0.03) once *skill345* is included).<sup>35</sup>

[Table 6]

The same holds true if individual skill dummies are included instead of *skill345*. Again, all except one of the skill dummies have positive and highly significant effects across all models. Most importantly here it is clear that, when we include the more fine-grained indicators of skills, the effect of *educational attainment* on attitudes is not substantively different than when we employed the dichotomous *skill345* measure.

#### *D. Additional Tests: Employment Status and Non-linear Education Effects*

One additional test of the labor market competition account, following Scheve and Slaughter (2001a, 141) and Mayda (2004, 12), involves examining whether the effects of education (or skill) levels on the attitudes of respondents in the labor force differ significantly from the effects of these variables among those *not* currently in the labor force. In particular, we might expect that concerns about labor market competition should only be observable among those currently in the labor force and thus sensitive

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<sup>34</sup> All other results reported below are substantively similar if we use *years of schooling* as the education proxy (the full results are available from the authors).

<sup>35</sup> Recall that in the models without skill, the total shift in probability associated with a change from the lowest to highest level of educational attainment was 0.32 (0.31). Cf. Table 3. We do need to exercise some caution with this direct comparison, as the estimations reported in Table 6 have slightly fewer observations than those in Table 3 (due to missing data for the *skill345* variable). However, when we re-estimate the models shown in Table 3 using just the sub-sample available for the analysis shown in Table 6 we get substantively identical results.

to the immediate effects of immigration on wage rates. To check for this possibility we split the ESS sample according to whether people are currently in “paid work” or not and then estimated our benchmark model, incorporating *educational attainment* and *skill*<sup>345</sup> for both sub-samples. If concerns about competition for jobs do indeed drive immigration preferences, the results for the out of labor force sub-sample should differ substantially from the benchmark estimates for the sub-sample of those currently in paid work. The results are reported in Table 7, which displays just the estimated education and skills effects in the different sub-samples.

[Table 7]

Comparing the results for both sub-samples, as well as the full ESS sample, we find little difference in the estimated effects of education and skills on attitudes toward immigration. In all three cases, the estimated effects of education and skills are very similar, both in terms of magnitude and level of statistical significance, across all models.<sup>36</sup> This finding speaks strongly against the notion that concerns about job competition are a primary driving force in determining attitudes towards immigration.

Finally, following Chandler and Tsai (2001), we have re-estimated our benchmark model while allowing for nonlinearities in the effects of education on attitudes. The standard tests of the labor competition model all simply assume that attitudes are a linear function of education, measured on any cardinal scale such as *years of schooling* or *educational attainment*. Linearity seems an appropriate assumption given the way skill levels are expected to affect wages and preferences in the standard economic models. To test whether the relationship between education and attitudes toward immigration actually takes this simple form, we created a full set of dummy variables for each different level of education that a respondent could have attained, as coded in the ESS data: *elementary* (1=completed

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<sup>36</sup> Here our results clash directly with those reported by Scheve and Slaughter (2001a, 142) and Mayda (2004, 13), who find that the education effect on attitudes toward immigration is significantly larger among respondents in the labor force than among those not in the labor force. Beyond the difference in data sets, it is difficult to speculate about possible reasons for this divergence. The sub-set of individuals not in the labor force is radically different from the group that is in the labor force in many ways (e.g., in age and gender) that tend to be correlated with both levels of education and attitudes toward immigration, so one question is whether collinearity between variables might be affecting the results, especially in small sub-samples. We have experimented with various specifications (e.g., dropping age and gender) and with various ways of defining the sub-samples (e.g., including or excluding students and the unemployed in the labor force, comparing those in work with only retirees), but the substantive findings remain the same. The full results from all these tests are available from the authors.



primary or first stage of basic education; 0=otherwise), *high school* (1=completed upper secondary schooling; 0=otherwise), *college* (1=completed first stage of tertiary education; 0=otherwise), and *Phd* (1=completed second stage of tertiary education; 0=otherwise). This coding is based on the UNESCO's *ISCED97* classification of educational systems that is designed to account for the different types of educational systems across countries.<sup>37</sup> We simply re-estimated the benchmark model incorporating the dummy variables in place of the standard measures of education employed above (the excluded category refers to respondents who did not finish elementary schooling). The results are shown in Table 8.

[Table 8]

It seems very clear that there are substantial nonlinearities in the effects of education on attitudes toward immigrants. Confirming the results Chandler and Tsai (2001) report using separate data on U.S. respondents, we find that college education has far greater positive effects on support for immigration than high school education, and finishing elementary schooling actually appears to have negative effects on support for immigration. In the case of immigration from richer (poorer) non-European countries, for instance, holding all other covariates at their sample means, completing college education shifts the probability of being pro-immigration by 0.16 (0.15) as compared to only 0.04 (and an insignificant 0.02) for high school education; while finishing elementary schooling reduces the probability of being pro-immigration by 0.07 (0.09). High school education is not a robust predictor of immigration preferences. There appears to be a very clear plateau effect here, with exposure to university education being the critical contributor to the generally positive relationship between education and support for immigration. If we run the benchmark model using *years of schooling* on two sub-samples – those who completed college and those who only completed high school – we find very distinct results: in the case of immigration from richer (poorer) European countries, for instance, the marginal effect of an *additional* year of schooling on the probability of being pro-immigration is only 0.008 (0.012) among college graduates as compared to 0.023 (0.022) among high school graduates.

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<sup>37</sup> Details can be found at [http://www.uis.unesco.org/TEMPLATE/pdf/isced/ISCED\\_A.pdf](http://www.uis.unesco.org/TEMPLATE/pdf/isced/ISCED_A.pdf)

This plateau effect associated with exposure to university education seems out of place with the simple story about labor market competition and its effects on immigration preferences. It would appear to fit much better with alternative approaches to explaining attitudes toward immigration that focus on cultural values and identity and the way they are related to education: college curricula and the intellectual and social environment cultivated in most modern universities do typically emphasize the virtues of tolerance and cultural diversity, and provide students with access to a cosmopolitan network of teachers and fellow students (see Case et al. 1989; Betts 1988).

### **V. Education, Cultural Values, and Attitudes Toward Immigration**

The tests above indicate that the clear association between education levels and individual support for immigration (of both high and low skilled workers) is simply not consistent with the standard labor market competition argument. We now examine whether the relationship is better accounted for by alternative claims about the way education generates greater ethnic and racial tolerance among individuals and more cosmopolitan outlooks. To do so, we employ an array of different measures of individuals' values and beliefs available in the ESS data. Most importantly, we employ a measure of *racism* among respondents (coded from 0 to 10), based upon how desirable each individual thinks it is that new immigrants "be white."<sup>38</sup> And we include a measure of the extent to which respondents believe immigration worsens *crime* problems in the native country (coded on a scale from 0 to 10), since this appears to capture a rather negative stereotype of foreigners or outsiders.<sup>39</sup> We also include a measure we call *antihate* (also coded from 0 to 10), reflecting the degree to which respondents' would support a law against promoting racial or ethnic hatred.<sup>40</sup> We use an index of the degree to which each respondent

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<sup>38</sup> This ESS question is: "Please tell me how important you think each of these things should be in deciding whether someone born, brought up and living outside [respondent's country] should be able to come and live here." We assess responses to the answer subcategory: "...be white?" It is coded on a scale from 0=extremely unimportant, to 10=extremely important. The ESS includes a large range of excellent questions designed to reveal racist sentiments. We have found that these measures are quite highly correlated, and our choice of a measure related specifically to the race of immigrants (versus minorities in the home countries) makes no difference to the substantive results.

<sup>39</sup> The question is: "Are [respondent's country's] crime problems made worse or better by people coming to live here from other countries?" The answers are originally coded on a scale from 0=crime problems made worse, to 10=crime problems made better. We have recoded these along more intuitive lines.

<sup>40</sup> The ESS question is: "How good or bad are each of these things for a country? ... A law against promoting racial or ethnic hatred." The answers are coded on a scale from 0=extremely bad, to 10=extremely good.

believes that immigration enriches the *culture* of his or her native country (also coded from 0 to 10).<sup>41</sup> And we include a measure of support for *multiculturalism* (coded from 1 to 5), indicating the degree to which respondents disagreed with the notion that it was better for his or her country if everyone shared the same customs and traditions.<sup>42</sup> Table 9 reports the correlations between these variables and the measures of education. As expected, more educated respondents are significantly less racist, place greater value on cultural diversity, and are less likely to think that immigrants worsen crime problems.

[Table 9]

Next we re-estimate our benchmark model, incorporating each of these new “values” variables one-at-a-time and examining both the effects they have on immigration preferences and the degree to which adding each new variable reduces the residual effect of education levels on attitudes. We have estimated these models for all of the dependent variables, but for brevity here we only report the results for attitudes toward immigrants from poorer European countries.<sup>43</sup> Table 10 presents the results. Each of the cultural value variables is a significant predictor of attitudes toward immigration and has large substantive effects in the anticipated direction. Not surprisingly, *racism* among respondents is strongly associated with anti-immigrant sentiments. Concerns that immigration worsens *crime* problems make respondents less likely to support immigration, and the effects are predictably larger in magnitude for immigration from poorer versus richer countries (not shown here). Respondents who feel that immigration enriches rather than undermines the national *culture* are more likely to support immigration, as are people that share tolerant (*antihate*) and *multicultural* views. These non-economic variables have significant effects across all models (and again the effects are larger, in each case, for attitudes toward immigration from poorer versus richer nations). The pattern suggests that people differentiate between

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<sup>41</sup> The ESS question is: “Would you say that [respondent’s country’s] cultural life is generally undermined or enriched by people coming to live here from other countries?” The answers are coded on a scale from 0=Cultural life undermined, to 10=Cultural life enriched.

<sup>42</sup> The question is: “Using this card, please tell me how much you agree or disagree with each of these statements.” We assess responses to the answer subcategory: “It is better for a country if almost everyone shares the same customs and traditions.” The answers are coded on a scale from 1=agree strongly, to 5=strongly disagree. We have recoded these along more intuitive lines.

<sup>43</sup> Full results from all the estimations are available from the authors.

immigrants not primarily according to the level of their skills, and the corresponding threat they pose to respondents' wages, but rather along cultural or other non-economic dimensions.

[Table 10]

The results clearly indicate that the division between more and less-educated natives over support for immigration is primarily a distinction in values. As each cultural variable is added to the model the estimated effect of education decreases in magnitude while the explanatory power of the model increases. In the most extensive model (column 6), the magnitude of the (residual) education effect is decreased to the extent that shifting from a respondent with the lowest to the highest level of education (with all other variables at their means) increases the probability of being pro-immigration by only 0.13, as compared with 0.31 for the benchmark model (column 1). The measured differences in cultural values across respondents thus appear to account for some 58% of the uncontrolled education effect.

What else, besides these types of values, might be reflected in the residual effect that education has on attitudes toward immigration? One strong possibility is that it may reflect the fact that more educated respondents are more informed about the overall efficiency gains associated with economic integration in general (see Bauer, Poole, and Dexter 1972, 103; Schneider 1985, 932). The ESS includes a good proxy that seems to capture beliefs about the general welfare effects of immigration. The measure is based on the degree to which each respondent thinks immigration is good for his or her country's *economy* as a whole (coded on a scale from 0 to 10).<sup>44</sup> This variable is correlated in a positive fashion with education levels, as expected: the correlation between *educational attainment (years of schooling)* and *economy* is 0.20 (0.18).

Table 10 (column 7) reports the results when we include this additional variable in the most extensive of the "values" models estimated above, again focusing on immigration from poor European source countries. Whether individuals believe that immigration implies welfare gains for the *economy* as a whole has a significant positive effect on the support for immigration. Interestingly, this economic

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<sup>44</sup> The question is: "Would you say it is generally bad or good for [respondent's country]'s economy that people come to live here from other countries?" The answers are coded on a scale from 0=bad, to 10=good.

literacy effect is larger for the case of immigration from poorer countries versus richer countries (not shown here) – in line with the notion that, due to greater complementarities, the aggregate “immigration surplus” should be larger the more immigrants differ from natives in their skill endowments. More importantly, including *economy* in the model further reduces the residual effect of education by about 6 percentage points (to only 0.11) and slightly increases the explanatory power of the model. This suggests that “economic literacy,” largely a product of higher education, accounts for a component of the general education effect on attitudes toward immigration that is quite separate from cultural predictors.

Overall, the measured differences in cultural values and economic literacy across respondents thus appear to account for some 65% of the uncontrolled education effect. The residual education effect is even further reduced (and falls to 0.10) once we also add our *skill345* proxy to the model (column 8). Presumably the remaining education effect either reflects some other type of causal relationship between education and feelings about immigration that we have not yet considered, or it reflects relevant dimensions of cultural values and beliefs and knowledge not captured by the available indicators.

## **VI. Robustness Tests**

One possibility we have also examined is that the connection noted above between education levels and cultural variables like racism and tolerance might itself be, at least in part, a function of labor-market concerns. Perhaps fear of competition for jobs with foreigners and minorities makes less-educated individuals *generally* more racist and less tolerant, and thus more opposed to immigration, without regard for how likely it is that particular types of immigrants will actually compete for the same jobs as them. To test this idea, we examined whether the effects of education (or skill) levels on racism and tolerance among respondents in the labor force differ significantly from the effects of these variables among those *not* currently in the labor force. If the connection is influenced by concerns about labor market competition, it should be significantly stronger among those currently in the labor force than among other groups. We again split the ESS sample according to whether people are currently in “paid work” or not and then estimated levels of the *racist*, *antihate*, and *multicultural* variables using *educational attainment* and *skill345* as predictors for both sub-samples. We found no significant difference in the size or

significance of the estimated effects of education and skills on these cultural variables across the sub-samples. This finding strongly suggests that concerns about job competition are not a primary factor in explaining the connection between education levels and racism or tolerance.<sup>45</sup>

We have performed a variety of additional tests to gauge whether our key findings are robust to alternative specifications of the model, alternative measurements of a range of variables, and for various sub-samples of survey respondents. One straightforward test involves removing the restriction that the economic threat posed by immigration will be felt equally by respondents regardless of *where* they live in their home country. If we allow that the labor market can be segmented into geographically separate local markets, the wage effects of immigration may be significantly larger in immigrant “gateway communities” than elsewhere (see Borjas 1999a, 10-11). To allow for this possibility, we interacted each of the education variables with the *minority area* variable, which reflects the concentration of ethnic and racial minorities in the area in which the respondent resides. The results are inconclusive at best.<sup>46</sup> We found no significant interaction effects along these lines except for the cases of immigration from Richer European countries, where the impact of education on support for immigration is significantly *weaker* in minority areas than in other locations (though the substantive differences are small). In these latter cases, the effects of education remain positive and substantively large in all areas, which is inconsistent with the expectations from the simple labour market competition account.

We also estimated a series of ordered probit models to check whether our results are sensitive to the choice of the cut-off point specified for the dichotomous dependent variables. The results show that this possibility can be clearly rejected: the estimated effects of education remain positive, statistically significant, and substantively large in magnitude across all estimations of the benchmark model. We found the same results when we estimated ordered probit models for each ESS country separately: again,

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<sup>45</sup> Full results from all sensitivity tests reported here are available in a supplement to this paper from the authors, and can be downloaded at: <<<http://www.ksg.harvard.edu/kssgorg/AustrianGerman/HH2004ImmigPref.htm>>>

<sup>46</sup> Scheve and Slaughter (2001a) tested for similar effects using data on immigration preferences (and the geographic concentration of immigrants) in the United States, finding no significant area effects. Money (1997) has argued that argued persuasively that such area effects may be conditional upon, or accentuated by, other geographically specific factors such as local unemployment rates and labor market flexibility.

all 176 of the education coefficients were positive and almost all (91%) were statistically significant.<sup>47</sup>

Finally, we tested whether the core results reported above were affected when we added a comprehensive set of additional control variables to the main benchmark variables and the measures of cultural values we incorporated in the estimations in sections IV and V. We experimented with a variety of “belief” variables (including respondents’ concerns about refugees, free market attitudes, altruism, traditionalism, and the importance attached to equality). We controlled for indicators of trade union membership, religion, and various proxies of social capital and interpersonal trust. And finally we controlled for various measures of economic insecurity or risk, including skill specificity, occupational unemployment, past unemployment, current unemployment, and (an inverse measure of risk) job mobility. Perhaps most significantly here, we found that while more educated respondents are less likely to be unemployed or to have experienced unemployment in the recent past, and they are also more mobile in the labor market (measured by their self-assessed chances of finding a new job with another employer), these effects are quite small in magnitude, and controlling for such measures of economic risk has no impact on the results of our tests. We also re-estimated both all full sample estimations and all single country models including regional fixed effects (in addition to the country fixed effects) to control for unobserved characteristics of location (e.g. proximity to a border, economic recession) that might potentially affect attitudes toward immigration. None of the additions to the model affected the main findings: most importantly, all estimated coefficients for the education variables retained their (positive) signs and their significance in all the full-sample estimations.<sup>48</sup> We conducted “jack-knife” diagnostics for all the full-sample estimations (excluding one country at a time), and found that estimated effects of education and skills are not sensitive to these changes.

## **VII. Conclusions**

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<sup>47</sup> When we increased the sample size for these country-specific models by replacing the standard income variable with the alternative household income measure (see fn. 26), 100% of the education coefficients were positive and 92% of them are statistically significant.

<sup>48</sup> For example, in the country-specific estimations that included regional fixed effects, 100% of the education effects were positive and 93% were significant at standard levels. If we plot the education magnitudes against GDP per capita the scissoring pattern is virtually identical to the one presented in Figure 1.

The main question we have addressed in this paper is whether opposition to immigration in Europe, most apparent among the less educated, is driven primarily by fears of labor market competition. This interpretation is fast becoming an accepted political-economy wisdom (see Borjas 1999a; Scheve and Slaughter 2001a, 2001b; Mayda 2004). The best available survey evidence we have, from the 2003 ESS, does *not* support this explanation at all. Our results indicate that, in contrast to what would be expected from conventional arguments about labor market competition, people with higher education levels are more likely to favor immigration regardless of where the immigrants come from and their likely skill attributes. The same relationship holds if we consider the occupational measures of the skill levels of respondents rather than their educational qualifications, and it is essentially unchanged regardless of whether we examine respondents who are in the labor force or those not in the labor force. The findings thus suggest that the relationship between education and views about immigration actually has very little to do with competition for jobs. This conclusion should not really be a surprise given that the most sophisticated economic models are equivocal about whether immigrants will have an adverse effect on the real earnings of native workers, and a growing body of empirical research shows that the actual effects of immigration flows on income, employment, and unemployment are quite small. From this perspective, our findings actually fit well with expectations from the best available economic theory and evidence.

This conventional story about labor market competition and anti-immigration sentiments appears to rest on an unfortunate misreading of the available evidence. We find strong support for alternative claims that anti-immigration sentiments are driven instead by values and beliefs that foster animosity toward foreigners and foreign cultures and that are most prevalent among less-educated individuals. The data indicate that more-educated respondents are significantly less racist and place far greater value on cultural diversity in society, and they are also more likely to believe that immigration generates benefits for their national economy as a whole. Together, these associated values and beliefs account for around 65% of the estimated effect of education on support for immigration.

The picture that emerges is not an especially rosy one for those who support immigration and worry about the growth of extremist, often violent, anti-immigrant movements in Europe. If anti-



immigration sentiments were primarily a function of economic fears among native workers, it would be reasonably easy to imagine ways to mitigate them by targeting financial assistance and job-creation programs toward the individuals (and communities) facing the greatest potential costs. But this is not a conclusion supported by the evidence. Anti-immigration sentiments appear to be far more powerfully affected by cultural values that have more to do with conceptions of national identity than they do with concerns about personal, economic circumstances. Others have reached broadly similar conclusions using different types of measures from survey data gathered in particular countries (e.g., Citrin et al. 1997; Dustmann and Preston 2001; Burns and Gimpel 2000; Hooghe and Marks 2003; Sniderman et al. 2004). Here we have shown that the basic result holds generally (across Europe) and have focused on the role played by education in demarcating the cultural division that separates those individuals most likely to see immigration as a cultural threat and those likely to see immigration instead as a cultural boon.

The big question which follows logically, but which we do not attempt to answer here, has to do with just how deep this cultural division goes. It would be trite and misleading to suggest that more or better education is “the answer” for those interested in alleviating anti-immigration and anti-foreigner sentiment. To the extent that these types of attitudes are due to misunderstandings and misperceptions about foreigners (i.e., incomplete or biased information), then certainly we can expect that improvements in education may help to reduce support for exclusionary policies and alleviate tensions between natives and immigrants. And to the extent that education actually transforms the values held by individuals, encouraging them to have more tolerant, pro-outsider views of the world, focusing on the education system for long-term solutions to cultural conflict is wise. But we must be careful not to understate the cultural gap we are seeing in the data. Immigration brings to the fore very different conceptions of national identity – involving different views about the importance of ethnicity, religion, and language – which may be, to degrees still unknown, immutable and irreconcilable. The educational differences we can observe between those individuals holding more pro-and anti-outsider views of the world may be more of a symptom of the cultural divide between the two groups than it is a cause.

We have some important objections to our claims and some caveats we need consider. One general concern is whether individuals' responses to survey questions offer reliable evidence about their real policy preferences and attitudes. More specifically, might particular biases in the way people respond to questions about immigrants, if related to the education levels of the respondents, undermine any of our claims? The most important possibility is that more educated respondents might feel more pressure to respond in a more "politically correct" way to these survey questions, understating their anti-immigrant sentiments and overstating their commitments to tolerance and cultural diversity – from this perspective, the more-education respondents may not have hold values and views that are so far removed from those held by the less-educated, they just want to sound more tolerant when asked. It is possible that this type of bias may lead to a general overstating of the importance of educational and cultural differences for explaining peoples' real views about immigrants, however those real view might be established (independent of any survey bias), but it has no effect on our core findings. Recall that we found that the effects of education on immigration preferences were virtually identical when comparing responses to questions about immigrants from richer or poorer nations (and from inside and outside Europe). If the political correctness bias was strong, we might expect that it would have a greater impact on responses about poorer immigrants than on responses about richer immigrants, but this does not appear to be the case at all. Moreover, our key result for testing the labor market competition account is that education actually has a strong positive effect on support for immigrants from richer nations (those most likely to have high levels of skills) – the same effect that is has on support for poorer immigrants. To account for this result in terms of a political correctness survey bias of some kind, one would have to argue that the bias actually motivated more educated respondents to drastically overstate their fondness for rich immigrants but not poor immigrants. This seems to make little sense at all. And since we have found substantively identical results for our key tests when examining the effects of occupational skill levels and controlling for education levels, we do not think this is a real concern.

Another type of objection would be that the *actual* differences between types of immigrants, and the *actual* effects of immigration itself on labor market outcomes, are less important than the *perceptions*

of such things among survey respondents. Perhaps respondents just perceive all immigrants, from rich and poor countries, as the same (as low-skilled workers), even though there actually are clear skill differences among them. Perhaps less-educated respondents are more prone to perceive a larger economic threat from any new entrants to the labor market, not matter what the actual effect would be. None of the main advocates of the labor-market account make such claims, of should be noted, and instead assume that respondents' perceptions of the skill attributes of immigrants, and the wage and employment effects of immigration, closely match reality (e.g., Scheve and Slaughter 2001, p.135). It seems incredible that respondents would see *no* relevant economic difference at all between immigrants coming from rich countries compared to those coming from poor countries – the claim that would be required here if perceptual distortion and labor-market concerns were thought to be critical, since our findings indicate no significant difference in the relationships between education and attitudes toward immigrants from richer and from poorer nations. Moreover, any such claims about perceptual biases would require some logical explanation that did not just revert to a simple (non-economic) account that linked racism or xenophobia to levels of education in a manner in which it has already been linked above.

There are other complications that warrant further attention than we can give them here. In particular, more attention needs to be focused on the cross-national variation that is apparent in the estimated effects of education on immigration preferences. Research by Bauer et al. (2000) suggests that in nations that accept a high ratio of refugees relative to economic migrants, natives are more concerned about the social and cultural rather than the economic effects of immigration. Further research might examine whether in fact the country-specific effects of education are related in any systematic way to immigration policies across European countries, or to the actual skill (or ethnic) composition of immigration inflows, labor market regulations, welfare policies, or educational systems and the political values emphasized in school curricula. McClaren (2001, 90) has argued that the effects of education on policy attitudes may be a reflection of the elite discourse in Europe and the elite consensus in favor of European integration. This idea, and previous innovative work on public opinion by Zaller (1992), suggests that cross-national differences in elite views about immigrants (from European and non-

European nations) may help explain some of the patterns in the data. This approach to the issue would require an analysis of the degree to which non-elites are informed about the issues and thus susceptible to framing effects, and whether (and why) they might be predisposed to favor anti-immigrant messages from elites compared with pro-immigrant ones. In an important recent study, Sniderman et al. (2004) found that situational triggers, such as whether the public's attention was focused on a threat to the national culture, appear to play a major role in mobilizing support for exclusionary policies from those not already predisposed to anti-immigrant views. How large these trigger effects are, how they are related to the educational levels of respondents, and whether they can explain some of the cross-national variation in the data are major questions worth pursuing.

## Appendix I: Open-Economy Models of the Income Effects of Immigration

### *A. The Heckscher-Ohlin Model*

Assume an economy produces two commodities,  $X_1$  and  $X_2$ , with constant returns to scale, using two factors of production: high-skilled labor (i.e., human capital),  $K$ , and low-skilled labor,  $L$ . Factors are perfectly mobile between sectors, markets are perfectly competitive, and the economy is assumed to be small, in the sense that the volume of domestic production of each good has a negligible effect on world prices. Equilibrium is described by full employment of each factor (equations A-1 and A-2) and competitive profits (A-3 and A-4):

$$a_{K1}X_1 + a_{K2}X_2 = K \quad (\text{A-1})$$

$$a_{L1}X_1 + a_{L2}X_2 = L \quad (\text{A-2})$$

$$a_{K1}w_K + a_{L1}w_L = P_1 \quad (\text{A-3})$$

$$a_{K2}w_K + a_{L2}w_L = P_2 \quad (\text{A-4})$$

where  $a_{Ki}$  and  $a_{Li}$  are the quantities of  $K$  and  $L$  required per unit output of  $X_i$ ,  $w_K$  and  $w_L$  are wages for high-skilled labor and low-skilled labor, and  $P_i$  are commodity prices. Full employment requires that techniques of production are variable and, since competition ensures that unit costs are minimized, each  $a_{Ki}$  and  $a_{Li}$  depends upon the ratio of factor prices. After total differentiation of equations (A-3) and (A-4) we can derive the standard solutions that express changes in factor prices as a function of changes in goods prices:

$$\hat{w}_K = \frac{1}{\Delta}(\theta_{L2}\hat{P}_1 - \theta_{L1}\hat{P}_2) \quad (\text{A-5})$$

$$\hat{w}_L = \frac{1}{\Delta}(\theta_{K1}\hat{P}_2 - \theta_{K2}\hat{P}_1) \quad (\text{A-6})$$

where “hats” indicate proportional changes,  $\theta_{Ki}$  and  $\theta_{Li}$  are the distributive shares of  $K$  and  $L$  in the value of output of industry  $i$ , and  $\Delta = \theta_{K1} - \theta_{K2}$ . As long as commodity prices are constant, factor returns will not change. The effect of any changes in the supplies of high- or low-skilled labor (e.g., due to immigration of one type of labor or another) will just be reflected in a change in the output mix. Totally differentiating equations (A-1) and (A-2) and solving yields:

$$\hat{X}_1 = \frac{1}{\Pi}(\lambda_{L2}\hat{K} - \lambda_{K2}\hat{L}) \quad (\text{A-7})$$

$$\hat{X}_2 = \frac{1}{\Pi}(\lambda_{K1}\hat{L} - \lambda_{L1}\hat{K}) \quad (\text{A-8})$$

where  $\lambda_{Li}$  and  $\lambda_{Ki}$  are the fractions of total low-skilled and high-skilled labor in each sector  $i$ , and  $\Pi = \lambda_{K1} - \lambda_{L1}$ . This is the well-known “factor price insensitivity” result. This result holds for any number of factors ( $n$ ) used in the production of any number of traded commodities ( $m$ ), and allowing for production of any number of non-traded commodities, as long as  $n \leq m$  (section B below considers cases in which  $n > m$ ). The fixity of the prices of traded goods pins down the prices of the factors and non-traded goods (see Jones and Neary 1984: 20; Ruffin 1984: 261; Komiyama 1967).

If we depart from the standard HO assumptions, it is possible to show that this “insensitivity” result does not hold in the large country case, where the change in production in the home economy affects world price levels for traded goods. This is readily apparent from equations (A-5) and (A-6): if production of  $X_2$  is intensive in low-skilled labor, for instance, so that  $\theta_{K1} > \theta_{K2}$ , any increase in the

supply of low-skilled labor due to immigration that generates an increase in the production of  $X_2$  can lead to a decline in  $P_2$  (and an increase in  $P_1$ ) which also implies lower wages for low-skilled workers ( $w_L$ ) and higher wages for high-skilled workers ( $w_K$ ) – in both nominal and real terms. The magnitudes of these effects will be increasing in the country's shares of world markets in the traded goods, but decreasing in the elasticities of substitution between factors in each sector (as can shown by deriving new forms of A-7 and A-8 that allow for changes in the input coefficients,  $a_{Ki}$  and  $a_{Li}$ ).

Factor price insensitivity is also upset if we allow that a country may specialize in producing only a limited set of traded goods and that the inflow of immigrants may be large enough to induce a change in the set of goods produced. With minimal assumptions about the ranges of the input coefficients,  $a_{Ki}$  and  $a_{Li}$ , associated with production of each separate commodity across a continuum from most to least intensive in low-skilled vs. high-skilled labor, it is straightforward to demonstrate (from alternative forms of A-5 and A-6) that any endogenous shift to a product combination which employs higher ratios of low-skilled to high-skilled labor implies a fall (rise) in the real wages of low (high)-skilled workers.

### B. The Specific Factors Model

Now consider a simple version of the two-commodity, three-factor model examined by Jones (1971). Each commodity,  $X_i$ , is produced using high-skilled labor (human capital) specific to it,  $K_i$  and low-skilled labor,  $L$ , that is shared with the other sector and mobile between sectors. In cases such as these, where (due to specificity) the number of factors exceeds the number of traded goods, factor returns are not determined solely by commodity prices, they also depend on factor supplies. Equilibrium is again described by full employment of each factor and competitive profits:

$$a_{K1}X_1 = K_1 \quad (\text{B-1})$$

$$a_{K2}X_2 = K_2 \quad (\text{B-2})$$

$$a_{L1}X_1 + a_{L2}X_2 = L \quad (\text{B-3})$$

$$a_{K1}w_{K1} + a_{L1}w_L = P_1 \quad (\text{B-4})$$

$$a_{K2}w_{K2} + a_{L2}w_L = P_2 \quad (\text{B-5})$$

where  $a_{Ki}$  and  $a_{Li}$  are the quantities of  $K_i$  and  $L$  required per unit output of  $X_i$ ,  $w_{Ki}$  and  $w_L$  are wages for high-skilled labor in each industry and low-skilled labor, and  $P_i$  are commodity prices. After some manipulation, totally differentiating yields the classic Jones's solutions:

$$\hat{w}_{K1} = \frac{1}{\Phi} \left\{ \left[ \lambda_{L1} \frac{\sigma_1}{\theta_{K1}} + \frac{1}{\theta_{K1}} \lambda_{L2} \frac{\sigma_2}{\theta_{K2}} \right] \hat{P}_1 - \frac{\theta_{L1}}{\theta_{K1}} \lambda_{L2} \frac{\sigma_2}{\theta_{K2}} \hat{P}_2 + \frac{\theta_{L1}}{\theta_{K1}} (\hat{L} - \lambda_{L1} \hat{K}_1 - \lambda_{L2} \hat{K}_2) \right\} \quad (\text{B-6})$$

$$\hat{w}_{K2} = \frac{1}{\Phi} \left\{ \left[ \lambda_{L2} \frac{\sigma_2}{\theta_{K2}} + \frac{1}{\theta_{K2}} \lambda_{L1} \frac{\sigma_1}{\theta_{K1}} \right] \hat{P}_2 - \frac{\theta_{L2}}{\theta_{K2}} \lambda_{L1} \frac{\sigma_1}{\theta_{K1}} \hat{P}_1 + \frac{\theta_{L2}}{\theta_{K2}} (\hat{L} - \lambda_{L2} \hat{K}_2 - \lambda_{L1} \hat{K}_1) \right\} \quad (\text{B-7})$$

$$\hat{w}_L = \frac{1}{\Phi} \left\{ \lambda_{L1} \frac{\sigma_1}{\theta_{K1}} \hat{P}_1 + \lambda_{L2} \frac{\sigma_2}{\theta_{K2}} \hat{P}_2 + (\lambda_{L1} \hat{K}_1 + \lambda_{L2} \hat{K}_2 - \hat{L}) \right\} \quad (\text{B-8})$$

where  $\Phi = \lambda_{L1} \frac{\sigma_1}{\theta_{K1}} + \lambda_{L2} \frac{\sigma_2}{\theta_{K2}} > 0$ ,

and  $\sigma_i$  is the elasticity of substitution between low-skilled and high-skilled labor in sector  $i$ . It is clear that any increase in the supply of low-skilled labor ( $\hat{L} > 0$ ), at fixed commodity prices, will lower real wages for low-skilled workers while raising real wages for high-skilled workers of *all* types – the latter gains are

largest (smallest) for those in sectors that use low-skilled labor more (less) intensively. Inflows of any type of high-skilled labor ( $\hat{K}_1 > 0, \hat{K}_2 > 0$ ) will raise real wages of low-skilled workers while reducing real wages of *all* high-skilled workers.

Unlike the basic “insensitivity” results from the HO model, however, these distributional effects are compromised by the inclusion of non-traded goods in the model. If  $X_2$  is a non-traded commodity (e.g., medical care), any inflows of workers with skills specific to its production ( $K_2$ ) that generates an increase in the production of  $X_2$  can lead to a decline in  $P_2$  – this can occur when consumption tastes among individuals are such that the expansion in the output of  $X_2$  is not matched by the increase in aggregate consumer demand for  $X_2$  (if, say, immigrants have tastes biased strongly in favor of traded goods). If this is the case, as is clear from (B-6) above, high-skilled workers in the traded sector may actually benefit, in real terms, from immigration of high-skilled workers who have training specific to the non-traded sector. Perhaps even more telling, if production in the non-traded sector is highly intensive in low-skilled labor, the same kind of analysis leads to the conclusion that inflows of low-skilled immigrants may lead to a subsequent decline in  $P_2$  and the real wage effects for native low-skilled workers then become ambiguous. This is clear from (B-8): since we cannot be sure that nominal wages for low-skilled workers fall more quickly than does  $P_2$ , native workers may actually benefit in real terms if their consumption tastes are biased strongly in favor of the non-traded good.

More ambiguity enters when we consider the large country case. Assume again that both commodities are traded, but now allow that (world) prices may change in response to the total amount of each good produced in the economy. If production of  $X_2$  is relatively intensive in low-skilled labor, inflows of low-skilled labor due to immigration will increase output of  $X_2$  and can lead to a decline in  $P_2$  (and an increase in  $P_1$ ). Now the effects of these immigration flows on the real wages of *all* high-skilled and low-skilled workers become ambiguous, and depend in part upon consumption tastes.

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**Table 1: Immigration Preferences by Source: Full ESS Sample**

Immigration from ...	Allow none	Allow a few	Allow some	Allow many	Missing	Total	Dichotomous Variables (1=Allow many/some; 0=otherwise)	
							Mean	Std Dev.
Richer European Countries	4,048	11,936	17,946	6,336	2,035	42,302	0.603	0.489
	9.57	28.22	42.42	14.98	4.81	%		
Poorer European Countries	3,617	13,759	18,306	4,904	1,717	42,302	0.572	0.495
	8.55	32.53	43.27	11.59	4.06	%		
Richer Countries Outside Europe	4,466	13,178	17,351	5,256	2,050	42,302	0.562	0.496
	10.56	31.15	41.02	12.43	4.85	%		
Poorer Countries Outside Europe	4,316	14,670	17,127	4,364	1,826	42,302	0.531	0.499
	10.20	34.68	40.49	10.32	4.32	%		

Cases weighted by DWEIGHT and PWEIGHT.

**Table 2: Immigration Preferences by Source: Individual ESS Countries**

Country	Means of Dichotomous Dependent Variables:				Obs.*	GDP per capita**
	Favor Immigration from ...					
	Richer European Countries	Poorer European Countries	Richer Countries Outside Europe	Poorer Countries Outside Europe		
Luxembourg	0.52	0.51	0.49	0.47	1,370	56,290
Norway	0.62	0.66	0.54	0.60	2,017	35,132
Ireland	0.68	0.68	0.62	0.64	1,964	30,100
Denmark	0.69	0.56	0.59	0.46	1,415	29,306
Switzerland	0.69	0.73	0.63	0.69	1,947	28,128
Austria	0.43	0.39	0.37	0.35	2,063	28,009
Netherlands	0.54	0.58	0.50	0.56	2,312	27,071
Belgium	0.61	0.62	0.55	0.56	1,843	26,435
Germany	0.65	0.64	0.61	0.59	2,841	26,067
France	0.57	0.57	0.48	0.51	1,448	25,318
Finland	0.50	0.46	0.41	0.40	1,940	25,155
Italy	0.69	0.65	0.68	0.62	1,141	24,936
United Kingdom	0.56	0.53	0.51	0.49	2,020	24,694
Sweden	0.79	0.87	0.75	0.85	1,900	24,525
Israel	0.74	0.58	0.72	0.55	2,261	20,597
Spain	0.55	0.51	0.53	0.49	1,557	19,965
Portugal	0.43	0.39	0.43	0.38	1,405	17,310
Greece	0.33	0.16	0.27	0.14	2,459	16,657
Slovenia	0.69	0.59	0.64	0.57	1,452	16,613
Czech Republic	0.66	0.54	0.65	0.51	1,262	13,997
Hungary	0.30	0.16	0.24	0.12	1,531	12,623
Poland	0.68	0.59	0.66	0.57	1,971	9,935

\* Mean number of observations for the four dependent variables.

\*\* GDP per capita, PPP current international dollars for the year 2000. Source: *World Development Indicators 2003*.

Cases weighted by DWEIGHT.

**Table 3: Education and Support for Immigration: Benchmark Results for Full Sample**

Dependent variable: Favor Immigration from ...	Educational attainment				Years of Schooling			
	Richer European	Poorer European	Richer Countries Outside Europe	Poorer Countries Outside Europe	Richer European	Poorer European	Richer Countries Outside Europe	Poorer Countries Outside Europe
Model No. <sup>1</sup>	1	2	3	4	5	6	7	8
educational attainment	0.055*** (0.004)	0.053*** (0.005)	0.057*** (0.005)	0.054*** (0.005)				
years of schooling					0.020*** (0.002)	0.019*** (0.002)	0.021*** (0.002)	0.021*** (0.002)
age	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.002*** (0.000)	-0.000 (0.000)	-0.001** (0.000)	-0.001** (0.000)	-0.001*** (0.000)
gender	-0.044*** (0.013)	0.014 (0.011)	-0.022* (0.012)	0.014 (0.012)	-0.041*** (0.013)	0.018* (0.011)	-0.019 (0.012)	0.018 (0.012)
income	0.018*** (0.003)	0.013*** (0.003)	0.014*** (0.002)	0.011*** (0.003)	0.019*** (0.003)	0.014*** (0.003)	0.016*** (0.003)	0.012*** (0.003)
native	-0.046** (0.020)	-0.038 (0.026)	-0.035* (0.018)	-0.021 (0.024)	-0.047** (0.019)	-0.042* (0.024)	-0.036** (0.017)	-0.025 (0.022)
immigrant friends	0.076*** (0.008)	0.110*** (0.009)	0.080*** (0.009)	0.113*** (0.008)	0.075*** (0.008)	0.110*** (0.009)	0.081*** (0.009)	0.113*** (0.008)
minority area	-0.003 (0.008)	0.015* (0.009)	-0.004 (0.009)	0.013* (0.008)	-0.001 (0.008)	0.018** (0.009)	-0.002 (0.009)	0.015* (0.008)
partisan right	-0.004 (0.003)	-0.019*** (0.004)	-0.009*** (0.003)	-0.022*** (0.003)	-0.004 (0.003)	-0.020*** (0.003)	-0.008*** (0.003)	-0.022*** (0.003)
Observations	28666	28814	28605	28693	28582	28732	28521	28610
Log likelihood	-17620.44	-17486.00	-17951.63	-17728.36	-17591.08	-17445.13	-17915.31	-17659.04
Pseudo R-squared	0.08	0.10	0.08	0.10	0.07	0.10	0.08	0.10

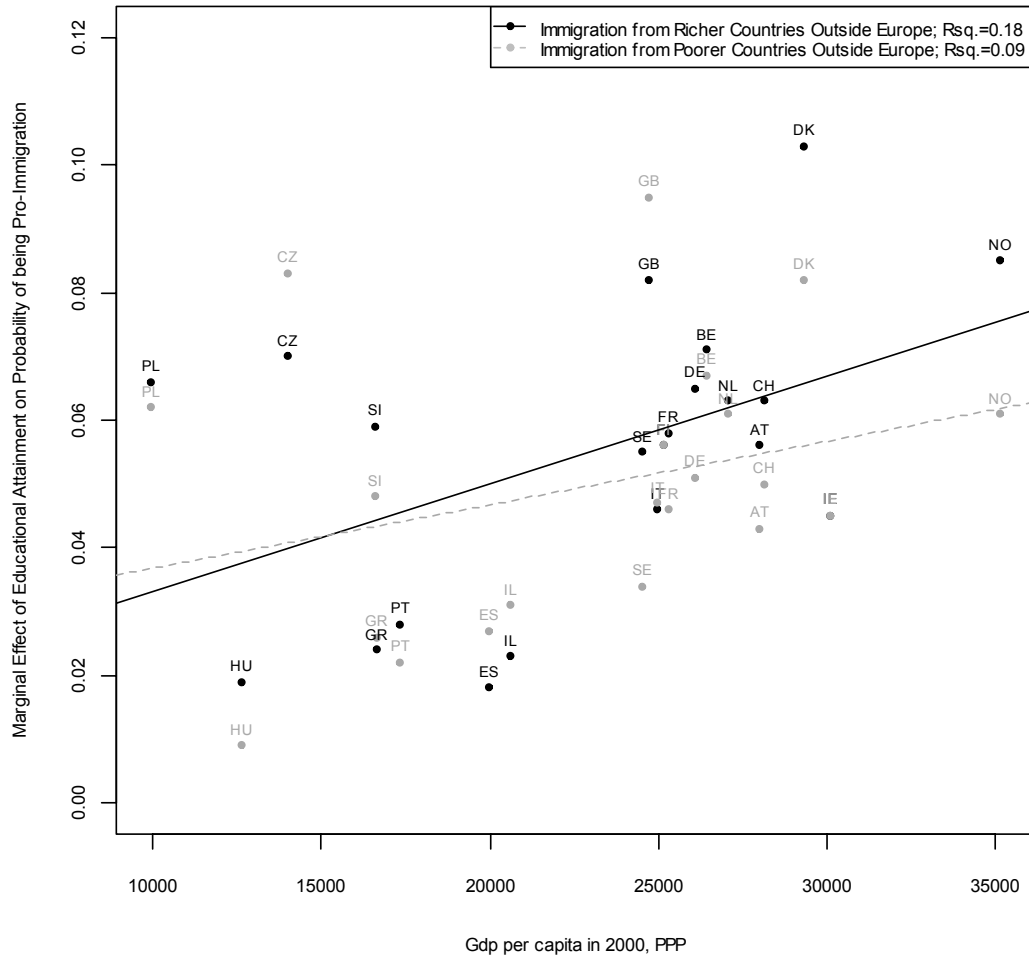
1. Probit estimations: marginal effects ( $\partial F/\partial x$ ) are shown with robust standard errors, adjusted for potential regional clustering, in parentheses. \* p<0.10 \*\* p<0.05 \*\*\* p<0.01. Each model includes a full set of country dummies (coefficients not shown here). Cases weighted by DWEIGHT and PWEIGHT.

**Table 4: Effects of Education on Immigration Preferences: Country-Specific Estimates**

Dependent Variable: <sup>1</sup> Favor Immigration from ...	Educational attainment				Obs. (avg)	Years of schooling				Obs. (avg)
	Richer Europe	Poorer Europe	Richer Outside	Poorer Outside		Richer Europe	Poorer Europe	Richer Outside	Poorer Outside	
Country					Obs. (avg)					Obs. (avg)
Luxembourg	0.052*** (0.014)	0.037*** (0.013)	0.041*** (0.014)	0.038*** (0.013)	699	0.022*** (0.006)	0.019*** (0.006)	0.020*** (0.006)	0.020*** (0.006)	696
Norway	0.080*** (0.015)	0.048*** (0.014)	0.085*** (0.018)	0.061*** (0.014)	1891	0.025*** (0.006)	0.016*** (0.003)	0.031*** (0.005)	0.021*** (0.003)	1913
Ireland	0.045*** (0.006)	0.051*** (0.009)	0.045*** (0.009)	0.045*** (0.008)	1371	0.025*** (0.005)	0.018*** (0.003)	0.022*** (0.004)	0.020*** (0.003)	1342
Denmark	0.086*** (0.011)	0.095*** (0.012)	0.103*** (0.017)	0.082*** (0.012)	1185	0.029*** (0.004)	0.031*** (0.004)	0.032*** (0.006)	0.025*** (0.006)	1185
Switzerland	0.073*** (0.012)	0.038** (0.015)	0.063*** (0.021)	0.050*** (0.010)	1446	0.030*** (0.004)	0.018*** (0.003)	0.031*** (0.007)	0.020*** (0.007)	1445
Austria	0.062*** (0.012)	0.052*** (0.016)	0.056*** (0.013)	0.043** (0.018)	1218	0.031*** (0.005)	0.026*** (0.005)	0.024*** (0.005)	0.021*** (0.006)	1202
Netherlands	0.068*** (0.009)	0.060*** (0.009)	0.063*** (0.006)	0.061*** (0.009)	1933	0.016*** (0.003)	0.022*** (0.004)	0.018*** (0.003)	0.020*** (0.003)	1920
Belgium	0.064*** (0.019)	0.061*** (0.003)	0.071*** (0.017)	0.067*** (0.013)	1236	0.024*** (0.009)	0.025*** (0.003)	0.024*** (0.009)	0.030*** (0.006)	1241
Germany	0.046*** (0.012)	0.043*** (0.011)	0.065*** (0.007)	0.051*** (0.012)	2151	0.017*** (0.004)	0.019*** (0.004)	0.024*** (0.004)	0.023*** (0.004)	2148
France	0.048*** (0.010)	0.050*** (0.014)	0.058*** (0.012)	0.046*** (0.011)	1175	0.020*** (0.006)	0.021*** (0.008)	0.026*** (0.008)	0.022*** (0.007)	1162
Finland	0.058*** (0.007)	0.050*** (0.009)	0.056*** (0.008)	0.056*** (0.008)	1679	0.024*** (0.001)	0.022*** (0.004)	0.025*** (0.006)	0.022*** (0.005)	1683
Italy	0.047*** (0.017)	0.027 (0.021)	0.046*** (0.017)	0.047*** (0.017)	511	0.014*** (0.004)	0.009* (0.005)	0.014*** (0.005)	0.015*** (0.003)	511
United Kingdom	0.095*** (0.010)	0.103*** (0.011)	0.082*** (0.012)	0.095*** (0.016)	1611	0.036*** (0.005)	0.033*** (0.005)	0.028*** (0.004)	0.031*** (0.004)	1604
Sweden	0.057*** (0.007)	0.031*** (0.006)	0.055*** (0.006)	0.034*** (0.005)	1709	0.032*** (0.004)	0.014*** (0.003)	0.033*** (0.003)	0.018*** (0.003)	1708
Israel	0.030*** (0.010)	0.031** (0.015)	0.023** (0.010)	0.031 (0.021)	1562	0.009* (0.005)	0.012* (0.007)	0.007 (0.005)	0.011 (0.008)	1524
Spain	0.026** (0.012)	0.016 (0.020)	0.018 (0.017)	0.027 (0.019)	794	0.011** (0.005)	0.007 (0.008)	0.007 (0.006)	0.010 (0.007)	757
Portugal	0.042* (0.025)	0.021 (0.017)	0.028 (0.021)	0.022 (0.014)	800	0.016** (0.008)	0.009 (0.006)	0.012 (0.008)	0.010* (0.006)	800
Greece	0.022** (0.011)	0.031*** (0.005)	0.024** (0.012)	0.026*** (0.007)	1424	0.007** (0.003)	0.011*** (0.002)	0.008* (0.004)	0.010*** (0.002)	1424
Slovenia	0.052*** (0.013)	0.069*** (0.022)	0.059*** (0.019)	0.048** (0.021)	955	0.015*** (0.005)	0.024*** (0.007)	0.022*** (0.007)	0.018*** (0.006)	968
Czech Republic	0.058*** (0.021)	0.066** (0.033)	0.070*** (0.024)	0.083*** (0.027)	827	0.021*** (0.005)	0.034*** (0.008)	0.023*** (0.005)	0.034*** (0.007)	818
Hungary	0.032** (0.014)	0.010 (0.006)	0.019* (0.011)	0.009 (0.007)	1102	0.014** (0.006)	0.003 (0.003)	0.012** (0.005)	0.003 (0.004)	1142
Poland	0.071*** (0.011)	0.065*** (0.010)	0.066*** (0.011)	0.062*** (0.010)	1419	0.033*** (0.005)	0.028*** (0.005)	0.031*** (0.005)	0.028*** (0.005)	1421
Total (of 22) Positive Coeff.	22	22	22	22		22	22	22	22	
Total sig. (p<.01)	22	18	20	18		22	19	19	19	
Total sig. if drop (p<.01)	22	20	21	20		21	21	20	20	

1. Probit estimations: marginal effects ( $\partial F/\partial x$ ) are shown with robust standard errors, adjusted for potential regional clustering, in parentheses. \* p<0.10 \*\* p<0.05 \*\*\* p<0.01 Each model is estimated using a full set of benchmark controls (coefficients not shown here). Cases weighted by DWEIGHT.

**Figure 1: GDP per capita and the Effect of Education on Attitudes Toward Immigration:**  
 Marginal effects of educational attainment on support for immigration<sup>1</sup>



Regression equations, robust standard errors in parentheses:

$$\text{Immigration from Poorer Countries Outside Europe: } \hat{Y} = 0.027 + 0.0000010 \text{ GDP} \quad (0.0000008)$$

$$\text{Immigration from Richer Countries Outside Europe: } \hat{Y} = 0.009 + 0.000005 \text{ GDP}^* \quad (0.000003)$$

<sup>1</sup> The chart excludes Luxembourg, which is a clear outlier in terms of GDP per capita. Note that the pattern looks substantively identical if we include Luxembourg and plot against LN(GDP per capita).

**Table 5: Skill-Level and Immigration Preference by Source: Full ESS Sample**

Dependent variable: Favor Immigration from ...	High/Low Skill Distinction				Disaggregated Skill Levels			
	Richer European	Poorer European	Richer Countries Outside Europe	Poorer Countries Outside Europe	Richer European	Poorer European	Richer Countries Outside Europe	Poorer Countries Outside Europe
Model No. <sup>1</sup>	1	2	3	4	5	6	7	8
skill345	0.138*** (0.011)	0.129*** (0.010)	0.134*** (0.012)	0.133*** (0.009)				
skill2					0.059*** (0.020)	0.030 (0.019)	0.031 (0.019)	0.042** (0.020)
skill3					0.153*** (0.023)	0.123*** (0.018)	0.127*** (0.021)	0.135*** (0.020)
skill4					0.222*** (0.016)	0.199*** (0.018)	0.206*** (0.019)	0.217*** (0.020)
skill5					0.152*** (0.018)	0.127*** (0.020)	0.133*** (0.021)	0.145*** (0.020)
age	-0.001*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
gender	-0.035*** (0.011)	0.021** (0.009)	-0.015 (0.011)	0.025** (0.010)	-0.034*** (0.012)	0.021** (0.009)	-0.015 (0.011)	0.026** (0.010)
income	0.019*** (0.003)	0.017*** (0.003)	0.016*** (0.003)	0.015*** (0.003)	0.017*** (0.003)	0.016*** (0.003)	0.015*** (0.003)	0.013*** (0.003)
native	-0.033 (0.023)	-0.019 (0.021)	-0.035* (0.021)	-0.009 (0.022)	-0.033 (0.023)	-0.018 (0.021)	-0.034 (0.021)	-0.008 (0.022)
immigrant friends	0.071*** (0.009)	0.106*** (0.009)	0.074*** (0.010)	0.109*** (0.010)	0.069*** (0.009)	0.105*** (0.009)	0.072*** (0.010)	0.107*** (0.010)
minority area	-0.004 (0.010)	0.020** (0.010)	-0.006 (0.010)	0.016* (0.009)	-0.003 (0.010)	0.021** (0.010)	-0.005 (0.010)	0.017* (0.009)
partisan right	-0.006** (0.003)	-0.022*** (0.004)	-0.008*** (0.003)	-0.023*** (0.003)	-0.006** (0.003)	-0.022*** (0.003)	-0.008*** (0.003)	-0.023*** (0.003)
Observations	25043	25176	24989	25067	25043	25176	24989	25067
Log likelihood	-15419.71	-15303.99	-15756.10	-15551.70	-15374.22	-15273.00	-15722.02	-15515.61
Pseudo R-squared	0.07	0.10	0.07	0.10	0.07	0.10	0.07	0.10

1. Probit estimations: marginal effects ( $\partial F/\partial x$ ) are shown with robust standard errors, adjusted for potential regional clustering, in parentheses. \*  $p < 0.10$  \*\*  $p < 0.05$  \*\*\*  $p < 0.01$ . Each model includes a full set of country dummies (coefficients not shown here). Cases weighted by DWEIGHT and PWEIGHT.



**Table 6: Skill-level, Education, and Immigration Attitudes by Source: Full ESS Sample**

Dependent variable: Favor Immigration from...	High/Low Skill Distinction and Educational Attainment				Disaggregated Skill Levels and Educational Attainment			
	Richer European	Poorer European	Richer Countries Outside Europe	Poorer Countries Outside Europe	Richer European	Poorer European	Richer Countries Outside Europe	Poorer Countries Outside Europe
Model No. <sup>1</sup>	1	2	3	4	5	6	7	8
educational attainment	0.047*** (0.006)	0.047*** (0.006)	0.047*** (0.006)	0.049*** (0.006)	0.043*** (0.006)	0.044*** (0.006)	0.043*** (0.006)	0.045*** (0.006)
skill345	0.083*** (0.013)	0.074*** (0.012)	0.079*** (0.013)	0.076*** (0.011)				
skill2					0.041** (0.020)	0.012 (0.019)	0.012 (0.020)	0.023 (0.020)
skill3					0.109*** (0.025)	0.076*** (0.020)	0.079*** (0.024)	0.085*** (0.021)
skill4					0.146*** (0.023)	0.113*** (0.021)	0.121*** (0.025)	0.128*** (0.024)
skill5					0.098*** (0.022)	0.069*** (0.023)	0.075*** (0.022)	0.084*** (0.021)
age	-0.001** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.002*** (0.000)	-0.001** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.002*** (0.000)
gender	-0.033*** (0.012)	0.023** (0.009)	-0.013 (0.011)	0.027*** (0.011)	-0.033*** (0.012)	0.022** (0.010)	-0.014 (0.011)	0.027*** (0.011)
income	0.014*** (0.003)	0.012*** (0.003)	0.011*** (0.003)	0.010*** (0.003)	0.014*** (0.003)	0.012*** (0.003)	0.011*** (0.003)	0.010*** (0.003)
native	-0.025 (0.023)	-0.012 (0.021)	-0.027 (0.021)	-0.001 (0.021)	-0.026 (0.023)	-0.012 (0.021)	-0.027 (0.021)	-0.001 (0.021)
Immigrant friends	0.066*** (0.009)	0.100*** (0.009)	0.068*** (0.010)	0.103*** (0.010)	0.065*** (0.009)	0.100*** (0.009)	0.068*** (0.010)	0.103*** (0.010)
minority area	-0.003 (0.009)	0.021** (0.010)	-0.005 (0.010)	0.017* (0.009)	-0.003 (0.010)	0.021** (0.010)	-0.005 (0.010)	0.017* (0.009)
Partisan right	-0.006** (0.003)	-0.022*** (0.004)	-0.008*** (0.003)	-0.023*** (0.003)	-0.006* (0.003)	-0.022*** (0.004)	-0.008*** (0.003)	-0.023*** (0.003)
Observations	24939	25071	24885	24963	24939	25071	24885	24963
Log likelihood	-15229.59	-15121.50	-15570.44	-15366.14	-15214.75	-15114.86	-15562.45	-15357.40
Pseudo R-squared	0.08	0.11	0.08	0.11	0.08	0.11	0.08	0.11

1. Probit estimations: marginal effects ( $\partial F/\partial x$ ) are shown with robust standard errors, adjusted for potential regional clustering, in parentheses. \* p<0.10 \*\* p<0.05 \*\*\* p<0.01. Each model includes a full set of country dummies (coefficients not shown here). Cases weighted by DWEIGHT and PWEIGHT.

**Table 7: Skill-level, Education, and Immigration Attitudes by Source:**  
**Labor Force Sub-Samples**

	Dependent Variable <sup>1</sup> : Favor Immigration from ...			
	Richer European	Poorer European	Richer Countries Outside Europe	Poorer Countries Outside Europe
<b>Full ESS sample</b>				
educational attainment	0.047*** (0.006)	0.047*** (0.006)	0.047*** (0.006)	0.049*** (0.006)
skill345	0.083*** (0.013)	0.074*** (0.012)	0.079*** (0.013)	0.076*** (0.011)
Observations	24939	25071	24885	24963
Log likelihood	-15229.59	-15121.50	-15570.44	-15366.14
Pseudo R-squared	0.08	0.11	0.08	0.11
<b>In Labor Force Sample</b>				
educational attainment	0.053*** (0.006)	0.051*** (0.007)	0.050*** (0.007)	0.048*** (0.007)
skill345	0.071*** (0.016)	0.070*** (0.013)	0.065*** (0.016)	0.073*** (0.012)
Observations	15181	15244	15159	15190
Log likelihood	-8961.40	-9004.57	-9282.99	-9261.00
Pseudo R-squared	0.08	0.11	0.08	0.10
<b>Out of Labor Force Sample</b>				
educational attainment	0.041*** (0.009)	0.042*** (0.009)	0.043*** (0.010)	0.052*** (0.009)
skill345	0.100*** (0.020)	0.079*** (0.021)	0.098*** (0.020)	0.077*** (0.020)
Observations	9758	9827	9726	9773
Log likelihood	-6209.36	-6072.56	-6233.39	-6062.94
Pseudo R-squared	0.07	0.10	0.07	0.10

1. Probit estimations: marginal effects ( $\partial F/\partial x$ ) are shown with robust standard errors, adjusted for potential regional clustering, in parentheses. \* p<0.10 \*\* p<0.05 \*\*\* p<0.01. Each model includes a full set of benchmark controls and country dummies (coefficients not shown here). Cases weighted by DWEIGHT and PWEIGHT.

**Table 8: The College “Plateau” Effect in Attitudes Toward Immigration**

Model No. <sup>1</sup>	Dependent Variable: Favor Immigration from ...			
	Richer European	Poorer European	Richer Countries Outside Europe	Poorer Countries Outside Europe
	1	2	3	4
ELEMENTARY	-0.051*** (0.016)	-0.057*** (0.018)	-0.074*** (0.020)	-0.087*** (0.020)
HIGHSCHOOL	0.055*** (0.011)	0.028** (0.013)	0.042*** (0.011)	0.016 (0.016)
COLLEGE	0.161*** (0.014)	0.158*** (0.016)	0.163*** (0.012)	0.148*** (0.016)
PHD	0.207*** (0.022)	0.174*** (0.026)	0.204*** (0.032)	0.163*** (0.030)
age	-0.001*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
gender	-0.045*** (0.013)	0.014 (0.011)	-0.023** (0.012)	0.014 (0.012)
income	0.019*** (0.003)	0.014*** (0.003)	0.016*** (0.003)	0.013*** (0.003)
native	-0.043** (0.020)	-0.034 (0.026)	-0.032* (0.018)	-0.018 (0.024)
immigrant friends	0.076*** (0.008)	0.111*** (0.009)	0.081*** (0.009)	0.114*** (0.008)
minority area	-0.002 (0.008)	0.016* (0.009)	-0.004 (0.009)	0.014* (0.008)
partisan right	-0.004 (0.003)	-0.019*** (0.004)	-0.009*** (0.003)	-0.022*** (0.003)
Observations	28666	28814	28605	28693
Log likelihood	-17618.15	-17502.19	-17961.76	-17757.35
Pseudo R-squared	0.08	0.10	0.08	0.10

1. Probit estimations: marginal effects ( $\partial F/\partial x$ ) are shown with robust standard errors, adjusted for potential regional clustering, in parentheses. \*  $p < 0.10$  \*\*  $p < 0.05$  \*\*\*  $p < 0.01$ . Each model includes a full set of country dummies (coefficients not shown here). Cases weighted by DWEIGHT and PWEIGHT.

**Table 9: Correlations between Education and Cultural Tolerance**

Cultural Variables*	Educational attainment	Years of schooling
racism	-0.22	-0.22
crime	-0.10	-0.11
antihate	0.13	0.12
culture	0.23	0.22
Multiculturalism	0.23	0.24

\* Correlation coefficients for the full ESS sample. All correlations are significant at the .99 level. Cases weighted by DWEIGHT and PWEIGHT.

**Table 10: Education, Cultural Tolerance, and Economic Literacy**

Model No. <sup>1</sup>	Dependent Variable: Favor Immigration from Poorer European Countries							
	1	2	3	4	5	6	7	8
educational attainment	0.053*** (0.005)	0.044*** (0.005)	0.038*** (0.005)	0.036*** (0.005)	0.024*** (0.005)	0.022*** (0.005)	0.017*** (0.005)	0.016*** (0.006)
racism		-0.034*** (0.003)	-0.034*** (0.003)	-0.031*** (0.003)	-0.025*** (0.003)	-0.021*** (0.003)	-0.019*** (0.003)	-0.020*** (0.003)
crime			-0.058*** (0.005)	-0.057*** (0.005)	-0.041*** (0.005)	-0.038*** (0.005)	-0.029*** (0.005)	-0.032*** (0.006)
antihate				0.013*** (0.002)	0.009*** (0.002)	0.008*** (0.002)	0.007*** (0.002)	0.007*** (0.003)
culture					0.052*** (0.003)	0.046*** (0.003)	0.032*** (0.003)	0.033*** (0.004)
multiculturalism						0.056*** (0.006)	0.053*** (0.006)	0.055*** (0.007)
economy							0.042*** (0.003)	0.040*** (0.003)
skill345								0.033*** (0.011)
age	-0.001*** (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
gender	0.014 (0.011)	0.011 (0.011)	0.004 (0.011)	0.003 (0.011)	0.001 (0.010)	-0.003 (0.010)	0.011 (0.011)	0.022** (0.010)
income	0.013*** (0.003)	0.011*** (0.003)	0.011*** (0.003)	0.010*** (0.003)	0.009*** (0.003)	0.008*** (0.003)	0.008*** (0.003)	0.009*** (0.003)
native	-0.038 (0.026)	-0.042 (0.026)	-0.022 (0.025)	-0.019 (0.026)	0.001 (0.023)	0.002 (0.023)	0.024 (0.025)	0.047** (0.021)
immigrant friends	0.110*** (0.009)	0.095*** (0.008)	0.082*** (0.008)	0.079*** (0.009)	0.061*** (0.008)	0.058*** (0.009)	0.052*** (0.008)	0.046*** (0.010)
minority area	0.015* (0.009)	0.016* (0.009)	0.018** (0.008)	0.019** (0.009)	0.018** (0.009)	0.015* (0.009)	0.015* (0.009)	0.023** (0.010)
partisan right	-0.019*** (0.004)	-0.014*** (0.004)	-0.010*** (0.004)	-0.010*** (0.003)	-0.006 (0.004)	-0.004 (0.004)	-0.004 (0.003)	-0.009*** (0.003)
Observations	28814	28608	28088	27395	26861	26786	26258	22873
Log likelihood	-17486.00	-16926.18	-15974.81	-15517.57	-14697.25	-14515.95	-13952.22	-12089.69
Pseudo R-squared	0.10	0.12	0.16	0.16	0.19	0.19	0.21	0.21

1. Probit estimations: marginal effects ( $\partial F/\partial x$ ) are shown with robust standard errors, adjusted for potential regional clustering, in parentheses. \* p<0.10 \*\* p<0.05 \*\*\* p<0.01. Each model includes a full set of country dummies (coefficients not shown here). Cases weighted by DWEIGHT and PWEIGHT.

## Appendix II: Summary Statistics

**Table A1: Descriptive Statistics (Full ESS sample)**

<b>Variable</b>	<b>Obs.</b>	<b>Mean</b>	<b>Std Dev.</b>	<b>Min</b>	<b>Max</b>
Educational attainment	41988	2.82	1.47	0	6
schooling	41662	11.81	4.13	0	40
ELEMENTARY	41988	0.12	0.33	0	1
HIGHSCHOOL	41988	0.30	0.46	0	1
COLLEGE	41988	0.13	0.34	0	1
PHD	41988	0.05	0.21	0	1
skill345	35358	0.35	0.48	0	1
skill1	35358	0.12	0.33	0	1
skill2	35358	0.53	0.50	0	1
skill3	35358	0.16	0.36	0	1
skill4	35358	0.12	0.32	0	1
skill5	35358	0.07	0.26	0	1
age	42044	46.46	18.06	16	110
gender	42247	0.52	0.50	0	1
income	33652	5.92	2.44	1	12
native	42220	0.93	0.26	0	1
immigrant friends	42052	1.61	0.73	1	3
minority area	41457	1.66	0.68	1	3
partisan right	37117	4.92	2.16	0	10
racism	41394	2.30	2.82	0	10
crime	40666	6.77	2.08	0	10
antihate	39940	7.11	3.08	0	10
culture	39919	5.65	2.42	0	10
multiculturalism	41587	2.65	1.12	1	5
economy	39723	4.96	2.30	0	10

Cases weighted by DWEIGHT and PWEIGHT.