EMPIRICAL ESSAYS ON DETERMINANTS OF AND

ATTITUDES TOWARDS IMMIGRATION

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Abstract

This thesis brings together three independent empirical essays which focus on the determinants of individual attitudes towards immigration and the determinants of migrant flows from developing countries to developed countries. The first essay looks at what happens to migrant flows from poor countries as they experience economic development. It examines the relationship between economic development in poor migrant-sending countries and migrant flows from those countries to developed countries, using the UK as a case study. The analysis in this essay relies on UK immigration data from 1973-2005 for 48 developing countries in Africa, Asia and Central and South America. The conclusion from this essay is that there is an inverse U-shape relationship between economic development and the migrant flows from developing countries to the UK, though this relationship is sensitive to aggregation of countries

The second essay undertakes a comparative empirical analysis of the relative importance of the impact of economic and cultural concerns on individual attitudes towards immigration. Using data from the fourth round of the European Social Survey the study shows that there is no robust evidence to support the widely held view that economic concerns are more important than cultural concerns in shaping individual attitudes towards immigration.

In the third essay a series of analyses are undertaken: first, to examine the extent to which attitudes towards immigration are determined by individual concerns about how immigration affects the welfare state; and second, to evaluate the individual characteristics that shape their subjective views regarding the effects of immigrants on the welfare state.

With evidence based on the European Social Survey, the study finds that welfare state concerns are positive and robust determinants of individual attitudes towards predominantly unskilled immigration. It also finds that, older retired individuals are more likely than young or middle-aged individuals to have pessimistic views regarding the effects of immigrants on the welfare state. Hence they are also more likely to oppose immigration. By contrast, skilled individuals are more likely to have optimistic views and hence more likely to have pro-immigration attitudes than unskilled individuals.

Acknowledgements

Contents

List of Tables

ix

List of Figures

CHAPTER 1

Introduction

1.1 Context and Background

International migration, the permanent or semi-permanent relocation of people across countries or international administrative territories, is currently one of the main global phenomena (along with trade, FDI, global finance and environmental issues) that receive substantial policy attention both nationally and internationally. However, unlike other aspects of globalisation, the policies that govern international migration are largely under the control of the migrant-receiving countries (Hanson, 2010). Observed migrant flows are, thus, an equilibrium outcome resulting from a combination of demand and supply factors. On the supply side, flows are a function of migrants' decision to move, driven by economic and non-economic incentives. On the demand side, flows are shaped by destination countries' immigration policies (Borjas, 1999; Facchini 2008; Mayda, 2006; Harris, 1970).

Immigration control is an issue that is ubiquitous in public policy discussions and election campaigns throughout Europe. In Western Europe and in the US, immigration from developing countries is increasingly perceived as a problem in need of control and hence immigration policy issues are often high on the agenda for the governments of these countries. The question is, why?

In 2005, the number of international migrants in the world reached almost 191 million, up from 155 million in 1990 (UNDESA, 2006). This is a small number compared with the 6.7 billion inhabitants of the world, but it is often not a trivial number compared with either the populations of the migrant source or destination country. For instance, Zlotnik (1999) estimates that one in every 13 persons living in Western Europe, North America, Australia and New Zealand is an international migrant. Lowell (2007) also points out that, not only has the migration from less developed countries to developed countries increased considerably in the past three decades, but also the bulk of the current global migrant stocks are increasingly being concentrated in only a few countries.

International migration raises high hopes and deep fears because it has significant impacts (both positive and negative) on the lives (socially, politically, and economically) of billions of people. These people include the migrants themselves, the billions they leave behind in their countries of origin and the billions they settle with in the destination countries. The distributional impacts of international migration often have political consequences, which give politicians an incentive to manage the levels of restrictiveness in immigration policies. For example, various individuals or groups of individuals within the migrant-receiving country may have some preferences for some form, type, quality or quantity of immigrants depending on the perceived distributional impacts of those immigrants. The threats of international terrorism as well as the threats to social cohesion and cultural coherence, also contribute in making immigration policy a key issue in all regions of the world.

Individual attitudes towards immigrants and immigration are key inputs to any complete model of immigration policymaking. To understand both the policies implemented as well as the accompanying political conflict and public debates, there is a need to know who is in favour or against immigration policies and, more importantly, why? Facchini and Mayda (2009) outline a useful conceptual scheme, based on Rodrik (1995), for analysing the migration policy formation process. The basic idea is that the formulation of migration policies involves at least four elements. First, the policy making necessarily needs to take into account voters' individual preferences and how these preferences are shaped by immigration. Both economic and non-economic factors are found to play a role in shaping public opinion or attitudes towards immigration. The second step is to map these preferences into a policy demand. Various channels have been suggested in the economic literature, ranging from pressure groups to grass-root movements (Benhabib, 1996; Hatton and Williamson, 2005; Ortega, 2005). The third step is to identify the policy maker's preferences and the final step is to understand the details of the institutional setting in which the policies are introduced.

1.2 Aims, Objectives and Structure of Thesis

From the migrant destination country's point of view, immigration policies are often thought of as border policies that dictate how many people and who can enter and live in the country. However, one may also think of policies that seek to reduce the migration pressure by addressing the root causes of emigration in the source countries as forms of implicit immigration policies. Focusing on these two notions of immigration policy this thesis has two main aims within the context of immigration policies and immigration policy formulation.

Firstly, the thesis seeks to contribute further evidence to the economic literature on the determinants of international migration from developing countries to developed countries. With evidence on the relationship between emigration from developing countries and the evolution of economic development, the thesis aims to provide a better understanding of current and future migrant flows as well as the related foreign policies aimed at managing these flows. Secondly, the thesis seeks to contribute new and more systematic evidence to the economic literature on determinants of individual attitudes towards immigration. In so doing, it aims to throw more light on cultural and welfare state factors that shape individual attitudes towards immigration and thereby provide a better understanding of the immigration policy making process in general.

The thesis starts with an essay that focuses on analysing migrant flows from developing countries to the UK with the objective of assessing the relationship between the evolution of economic development in poor countries and the emigration from those countries to the UK. This is subsequently followed by two essays that focus on empirically analysing the determinants of individual attitudes towards immigration in Europe, using data from the fourth round of the European Social Survey (2008/09). The data includes a mixture of developed and developing countries as well as a collection of both important migrant destination countries (in Western Europe) and less important migrant destination countries in Eastern Europe.

1.2.1 Determinants of International Migration

People generally migrate in order to seek better lives and opportunities. The drive or motive to migrate is therefore born, largely, by economic conditions in the migrant sending country. As Ravenstein (1889) pointed out over a century ago, 'bad or oppressive laws, heavy taxation and unattractive climate, uncongenial social surrounds and even compulsionĔall have produced and are still producing currents of migration, but none of these currents can compare in volume with that which arises from the desire inherent in most men to "better" themselves in material respects'. However, the literature also shows that, the actual migration event is an individual/household investment decision. Hence, taking all relevant variables into consideration, the individual living in a poor country will migrate as long as the expected wage (given their skill level) in the destination country minus the cost of migration is greater than the expected wage in their home country (Bhagwati and Srinivasan, 1974; Harris and Todaro, 1970; Sajaastad, 1962; Stark, 1984; 1991; Stark and Bloom 1985; Todaro, 1976).

The study in chapter two undertakes to investigate what happens to migrant flows when economic conditions in poor migrant-sending countries begin to improve. Does migration decrease? The study is motivated by recent proposals (IOM and UNCTAD, 1996) for migrant-receiving developed countries to promote development through trade and aid in poor migrant-sending countries as way of addressing the root cause of migration and hence reducing migrant inflows from those countries. The assumption, inherent in these proposals is that there is a simple linear relationship between economic development and migrant flows. The chapter, however, argues that contrary this assumption, economic theory suggests a more complex, non-linear relationship between the two, where more development can lead to more migration, at least in the short to medium term.

The chapter focuses on the UK as the migrant destination country and uses migrant inflow data collected from the UK Home Office's Control of Immigration Statistics published in a series of 'command papers' for the UK parliament. The chapter employs panel data methods (on an unbalanced panel data of 48 developing countries in Africa, Asia and South and Central America covering 1973-2005) to test the hypothesis that there is an inverse U-shaped relationship between economic development and migrant flows from developing countries to the UK.

1.2.2 Determinants of Individual Attitudes towards Immigration

In every country of the world, there are, on the one hand, those who are keen to host more migrants, who need them desperately to fill vacant positions or to find someone who can pay for their pensions etc, and on the other hand, those who fear that migrants will ultimately steal their jobs, increase the crime rate, abuse the state transfers paid out of their pockets, etc. The literature on the determinants of individual attitudes towards immigration highlights rational (economic) self-interest, cultural conservatism (threat) and racism (xenophobia) as the main forces that drive individual attitudes towards immigrants and immigration. The strength of these forces may be influenced by individual characteristics or personal attributes (age, education, gender etc) as well as environmental, societal and country specific characteristics. These may include factors such as historical relationships, location, population, per capita income, economic growth, and the existing immigration experience in the country (Chiswick and Hatton, 2003; Dustmann and Preston, 2001; 2004; 2007; Mayda, 2006; O'Rouke and Sinnott, 2006; Scheve and Slaughter, 2001).

The second essay in this thesis, presented in chapter three, provides a comparison of cultural considerations and economic concerns in the observed attitudes towards

immigration. The chapter investigates the question: are economic concerns more important than cultural motivations in shaping individual attitudes towards immigration? The analysis controls for ethnicity and racial sentiments and the origin of the potential immigrants in addition to individual and country characteristics in a series of trivariate probit estimations.

Chapter four presents the final essay which focuses only on the economic determinants of individual attitudes towards immigration. It specifically looks at the role of welfare state considerations in shaping individual attitudes towards immigration. The chapter examines the extent to which individual attitudes are influenced by the recognition of the potential role of immigrants in addressing (at least temporarily) the sustainability issues of welfare state systems in Europe. In this context, the chapter first examines the extent to which individual immigration opinions are determined by their concerns about the effect of immigrants on the welfare state, where the potential immigrants are perceived as predominantly less skilled. Secondly, the chapter empirically evaluates the individual characteristics that drive their subjective views regarding the effect of immigrants on the welfare state and consequently their attitudes towards immigration. To this end, the chapter provides evidence to support theoretically justifiable predictions of how individual age and skill levels influence their welfare state concerns and attitudes towards immigration. The chapter employs a simultaneous bivariate ordered probit model, that allows the joint dependence of individual attitudes towards immigration and the endogenously determined 'subjective welfare state concerns' on individual characteristics and other control variables.

1.3 Migration in Europe

1.3.1 Short History

During the 19th Century and early 20th century Europe experienced mass out migration to the Americas, Africa and Asia. According to Russel King (1993) about 55-60 million people moved during 1820-1940 from Europe of whom 38 million went to the United States. After the Second World War, Europe became one of the main migrant receiving regions of the world. The story of migration up to the early 1970s is one of economic shortages interacting with pre-war colonial migration and citizenship laws in the UK, France, the Netherlands and Belgium, and with post-war gust worker policies in Austria, Switzerland, Germany, Belgium, the Netherlands, France, Demark and Sweden.

The number of people displaced by the Second World War was estimated at around 20 million, among them around 12 million Germans who had to leave Eastern Europe. Around 8 million of them migrated to Western Germany together with another 2.6 million East Germans who moved there before the establishment of the Berlin Wall in 1961 (Zimmermann, 1995). By 1950s, Germany and the rest of continental Europe had a level of demand for labour that could no longer be satisfied domestically. In a pattern common to most continental European countries, Germany looked first to Southern Europe, later to Turkey and finally to North Africa. The German Government negotiated guest-worker schemes with Italy (1955) Greece and Spain (1960), Turkey (1961), Morocco (1963), Portugal (1964), Tunisia (1965) and Yugoslavia (1968). Austria, Belgium, Switzerland, Sweden, Denmark, the Netherlands and France adopted variants of these guest-worker schemes (Hansen. 2003).

The UK also briefly tried its own version of the guest-worker schemes bringing in workers from Eastern Europe. However, these guest-worker schemes were mostly used by countries without a colonial history. For those countries without a colonial history, these bilateral guest-worker agreements were the only source of migrant labour. Europe's former colonial powers - the UK, France, Belgium and the Netherlands - were, by contrast, able to draw on a vast supply of unskilled workers. The UK saw an increase in the immigrants from the New Commonwealth after the Second World War beginning with the Caribbean countries and, later the Indian subcontinent. Nevertheless, the UK was pre-dominantly a country of emigration until the 1970s. France looked to Algeria, Morocco and Tunisia. In contrast with the tightly regulated system in Germany, Switzerland and Austria, the common practice in France was for companies to hire colonial migrants directly and to regularise their status later through the National office of Immigration (ONI) (Hansen. 2003).

All the major migrant receiving countries ended primary migration in the early 1970s. The UK acted first in 1971 followed by France and Germany in 1972 and 1973 respectively. The other countries did the same by the end of the 1970s. The first oil-price shock in 1973 also contributed to ending the recruitment of foreign labour in Europe. Most of the Colonial migrants as well as some of the guest-workers remained and became citizens, and as such claimed a right to family reunification. Thus, immigration to the European countries did not halt with the ending of active recruitment of foreign labour in Europe; rather, the main channels of immigration became family reunification and humanitarian immigration.

The collapse of the former centrally planned economies of Eastern Europe (including the collapse of the Berlin wall in 1989) created a new source for migration within Europe, mostly to Germany, Austria, Switzerland and France. Political reforms and the 1985 Schengen Agreement enabled further migration with Europe. As a result of

the Schengen Agreement, citizens of European Union member states and their families have the right to live and work anywhere within the EU because of EU citizenship but citizens of non-EU or non-EEA states do not have those rights unless they possess the EU Long Term Residence Permit or are family members of EU citizens.

Since the mid 1980s through to the early 1990s the main migrant receiving countries in Europe implemented several immigration and boarder policies aimed at preventing the clandestine inflows of immigrants especially from outside Europe. According to the United Nations' *World Economic and Social Survey 2004*, in 1996, the proportion of Governments having the goal of reducing the inflows of migrants peaked at 40 percent. Since then, the proportion of Governments reporting that they wish to reduce migrant inflows has fallen almost by half; and over the past decade, the Governments of many receiving countries have been actively adopting or amending laws and policies so as to facilitate the inflow of the types of migrants they need, especially skilled migrants.

1.3.2   Current Picture

According to the World Bank's Migration and Remittances Factbook 2011, Europe is now home to a about 27.3 million immigrants. This is about 12.7 percent of the World's 215.8 million immigrants. However, it is about 6.8 percent of the total European population. Of these immigrants, 0.8 percent are refugees compared to 7.6 percent for the world. The UN *International Migration Report 2006* points out that in 2005 the governments of only six European countries (Denmark, Estonia, France, Italy, the Netherlands and Romania) wished to reduce immigration.

Table 1.1 shows that Switzerland has the highest population of immigrants (23.2 percent) as percentage of the total population. In turns out that the Swiss are also generally more open to having migrants than all the other countries in our sample (this is show in Chapter 3). However, most of Switzerland's immigrant population come from other European countries and are from similar race and ethnic backgrounds. The top five source countries of Switzerland's immigrants are Italy, Germany, Portugal, France and Spain. Sweden is quite similar to Switzerland as it has a large number of immigrants (1.3 million) within a population that is highly pro-immigration compared to other European countries. Thought most of the Swedish migrants come from Europe a large number also come from Iraq, Iran and Chile.

The other European countries that are normally classified as large immigration countries with large numbers of foreign population include: Belgium, France, Germany,

Greece, Netherlands, Norway, Spain, and the UK. Germany has over 10million migrants (13.1 percent of population) most of whom come from Turkey, Italy, Poland, Greece, Croatia, the Russian Federation and Austria. The German government finally acknowledged Germany as a major migrant receiving country in 2005 when it implemented new immigration laws and a clear immigration policy aimed at admitting more skilled individual and preventing unskilled immigrants.

In 2010, France had about 6.7 million migrant while Spain and the UK both had over 6.9million resident migrants. These were about 10.7 percent, 15.2 percent and 11.2 percent of their respective populations. Unlike, Switzerland, Sweden and Germany, these three countries have significant non-European migrant populations. For example most of the migrants in France tend to come from Algeria and Morocco. Immigrants living in Spain are typically from Morocco, Ecuador, Colombia, Argentina, Bolivia and Peru while immigrants in the UK mostly come from India, Pakistan, South Africa, Bangladesh, the US, Jamaica and Kenya.

The number of immigrant in the Netherlands was above 1.7 million in 2010 and about 1.5 million in Belgium corresponding to 10.5 and 13.7 percent of the respective populations in these countries. The immigrants in the Netherlands tend to come from Turkey, Suriname, Morocco, Indonesia, Germany, Belgium, UK, Poland and China while the foreign population in Belgium tend to come from France, Morocco, Italy, the Netherlands, Turkey, Germany, the Democratic republic of Congo, Poland, Spain and the Russian Federation.

Croatia (15.9 percent), Cyprus (17.5 percent) and Latvia also have very large proportions of their populations being immigrants thought the actual number are relatively small compared to other countries. The main migrant sending countries in the case of Cyprus are the UK, Greece, Georgia, the Russian Federation and Sri Lanka while most of the immigrants in Croatia come from neighbouring countries, Bosnia and Herzegovina, Slovenia and the Former Yugoslav Rep of Macedonia. Immigrants in Latvia typically come from neighbouring countries, the Russian Federation, Lithuania, Belarus and Estonia as well as some Central Asian countries (Uzbekistan, Kazakhstan, and Azerbaijan).

Table 1.1: Migrant Stocks in Selected European Countries

County/Region	Stock of migrants (Million)	As a percentage of Pop	Refugees as a percentage of immigrants	Top sources of immigrants
World	215.8	3.2	7.6	
Europe	27.3	6.8	0.8	
Belgium	1.4657	13.7	1.2	France Morocco, Italy, Netherlands, Turkey, Germany, DR Congo, Poland, Spain, Russian Federation
Bulgaria	0.1072	1.4	4.4	Turkey
Croatia	0.6999	15.9	0.3	Bosnia and Herzegovina, Slovenia, the Former Yugoslav Rep of Macedonia, Germany
Cyprus	0.1543	17.5	0.7	UK, Greece, Georgia, Russian Federation, Sri Lanka, Philippines, Bulgaria, Romania, Egypt South Africa
Czech Republic	0.453	4.4	0.4	Slovak Rep, Ukraine, Poland, Vietnam, the Russian Federation, Romania, Germany, Austria
Denmark	0.4837	8.8	7.7	Turkey, Germany, Iraq, Bosnia and Herzegovina, Poland, Norway, Sweden, Lebanon, Iran, UK
Estonia	0.1825	13.6	0	Russian Federation, Ukraine Belarus, Latvia Lithuania, Finland
Finland	0.2256	4.2	3.8	Sweden, Estonia, Russian Federation, Somalia, Germany, China, Iraq, Thailand, Turkey, UK
France	6.6848	10.7	2.2	Algeria, Morocco, Portugal, Italy, Spain, Tunisia, Turkey, UK Germany, Belgium
Germany	10.7581	13.1	5.5	Turkey, Italy, Poland, Greece, Croatia, Russian Federation, Austria, Bosnia and Herzegovina.
Greece	1.1328	10.1	0.2	Albania, Bulgaria, Romania, Georgia, Russian Federation, Poland, Ukraine, Pakistan, Cyprus, UK
Hungary	0.3681	3.7	2	Romania, Germany, Austria, China, Ukraine, US, UK, Poland, France
Latvia	0.335	15	0	Russian Federation, Ukraine Uzbekistan, Belarus, Kazakhstan, Lithuania, Azerbaijan, Georgia, Estonia
Netherlands	1.7529	10.5	5.3	Turkey, Suriname, Morocco, Indonesia, Germany, Belgium, UK, Poland, China
Norway	0.4854	10	7.4	Sweden, Denmark, US, Iraq, Pakistan, UK, Germany, Bosnia and Herzegovina, Vietnam, Iran
Poland	0.8275	2.2	1	Ukraine, Belarus, Germany, Lithuania, Russian Federation, US, Czech Rep., Austria
Portugal	0.9186	8.6	0	Angola, France, Mozambique, Brazil, Cape Verde, Germany, Venezuela, Guinea-Bissau,
Romania	0.1328	0.6	1.3	Moldova, Bulgaria, Ukraine, Russian Federation, Syria, Hungary, Greece, Turkey, Italy, Germany
Russian Federation	12.27	8.7	0	Ukraine, Kazakhstan, Belarus, Uzbekistan, Azerbaijan, Georgia, Armenia, Tajikistan, Moldova
Slovenia	0.1639	8.1	0.2	Bosnia and Herzegovina, Croatia, Ukraine, Russian Federation, Italy, Austria, Romania, France
Spain	6.9005	15.2	0.1	Romania, Morocco, Ecuador, UK Colombia, Argentina, Bolivia, Germany, France, Peru
Sweden	1.306	14.1	5.7	Finland, Iraq, Poland, Iran, Bosnia and Herzegovina, Denmark, Germany, Norway, Turkey, Chile
Switzerland	1.7628	23.2	2.7	Italy, Germany, Portugal, France, Spain, Turkey, Austria, Bosnia and Herzegovina, UK
Turkey	1.4109	1.9	0.3	Bulgaria, Germany, Greece, the Netherlands, Romania, Russian Federation, UK, Azerbaijan
UK	6.9557	11.2	4.3	India, Poland, Pakistan, Ireland, Germany, South Africa, Bangladesh, US, Jamaica, Kenya

Source: Migration and Remittances Factbook 2011

9

Economic Development and Migrant Inflows

2.1 Introduction

Over the last half-century, international migration has grown considerably and taken forms which were not anticipated by governments and planners (Castles, 2000). In the past three decades, there has been a considerable and persistent growth in the number of people migrating from less developed countries to developed countries, but also the bulk of the global migrant stock are increasingly being concentrated in only a few developed countries (Lowell, 2007). In the West, immigration from developing countries is increasingly perceived as a problem in need of control as it is an important factor of social transformation and presents several complex, challenging and contentious issues in the political economy (Castles, 2000; Nyberg-Sørensen, Van Hear and Engberg-Pedersen, 2002).

However, in spite of substantial efforts, restrictive immigration policies and the militarization of border controls have failed to significantly curb immigration from developing countries (Castles, 2004). Given that the most obvious cause of migration from developing countries is the disparity in the levels of income, employment and social well-being, one "smart solution" often proposed by some scholars, development practitioners and politicians is to promote social and economic development in poor migrant sending countries as a way of curtailing immigration (de Haas, 2006; Stalker, 2002; van Dalen, Groenewold and Schoorl, 2005).

In particular development aid and trade liberalisation are commonly advocated as more effective instruments to reduce migration than restrictive immigration laws and intensified border controls (Schiff, 1996). For example, in October 2005, president of the European Commission José Manuel Barroso stated that "The problem of immigration, the dramatic consequences of which we are witnessing, can only be

addressed effectively [...] through an ambitious and coordinated development [plan] to fight its root causes" A comprehensive discussion and analyses of such proposals is provided by de Haas (2006) who argues why such policies are bound to fail.

The underlying assumption for these proposals is that aid, trade and other development promoting incentives can generate "rapid" economic growth and development in the migrant sending countries which will in turn induce potential poverty migrants to stay at home (IOM and UNCTAD, 1996). Thus, development promotion policies are expected to address the root causes of migration and lead ultimately to a reduction in the migrant flows. Contrary to this assumption of a simple linear relation between economic development and migration, economic theory suggests a more complex, non-linear relationship between the two where more development can lead to more migration, at least in the short to medium term (de Haas, 2006).

Rotte and Vogler (2000) are among the few studies that have focused on empirically analysing the long and short run relationships between migrations and development dynamics. They analyse migrant flows from 86 African and Asian developing countries to Germany for the period 1981 to 1995. Their study shows that there is an inverse U-shaped relationship between development and migrant flows to Germany. This means that more economic and human development leads to more migration up to a certain threshold in development after which further development leads to less migration.

The aim of this chapter is to undertake an empirical analysis on the relationship between migrant flows and economic development, using the UK as a case study. The chapter focuses on one main question: does economic development in developing countries reduce the migration from these countries to the UK? In other words, the chapter aims to test the existence of a non-linear (inverted U-shaped) relationship between development and migration from developing countries to the UK. The study in this chapter is made possible and worthwhile by access to a uniquely rich and reliable immigration data from the UK Home Office. This is an administrative data that span from 1973-2005 and provides actual statistics (made possible by visa applications and entry counts) of immigrants not only by country of origin but also by the various immigration categories.

In addition to an appropriate dataset, the UK presents an interesting case study because it has a long and complex history of international migration and is among the top ten countries currently hosting the largest number of the global international migrants[1]. The largest increases in the legal permanent-type migrants in 2005 were

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[1]Source: Migration and Remittances Factbook, World Bank, http://www.worldbank.org/prospects/migrationandremittances

observed in the United States (+164, 000), the UK (+55, 000) and Italy (+31, 000) (OECD, 2007).

The rest of the chapter is organised as follows. The next section, 2.2, presents a brief literature review before a brief overview of UK migration and data sources is provided in section 2.3. The data and method are introduced in section 2.4 along with some descriptive statistics. Section 2.5 then presents and discusses the results, while section 2.6 concludes the chapter.

2.2   Literature Review

The first scholarly contribution to migration consisted of two articles by the nineteenth century geographer Ravenstein (1885; 1889) in which he formulated his "laws of migration". He recognised the general primacy of economic motivations in migration and concluded that: 'bad or oppressive laws, heavy taxation, an unattractive climate, uncongenial social surroundings, and even compulsion (slave trade, transportation), all have produced and are still producing currents of migration, but none of these currents can compare in volume with that which arises from the desire inherent in most men to "better" themselves in material respects'. Labour migration is generally understood to be the chief motive for migration for the majority of migrants especially from developing countries to developed countries. This labour migration is also understood to be driven by differences in returns to labour or expected returns across countries or markets.

The greater part of economic research on international migration has dealt with the question of why people migrate and, to a lesser extent, the dynamics of migration, such as continues migration given changes in the initial conditions. Although there is hardly a single unifying theory that explains all the aspects of international migration (including the impacts on both the sending and receiving countries), one cannot conclude that theory building in this area has been unsuccessful as there is a significant reservoir of concepts and approaches to rely on for the analysis and explanation of the various aspects of international migration.

The first influential economic theory about migration emanates from the neo-classical economic paradigm. At the macro-level, neo-classical economic theory explains migration by geographical differences in the supply and demand for labour. The resulting differentials in wages cause workers to move from low-wage, labour-surplus regions to high-wage, labour-scare regions. Migration will cause labour to become less scarce at the destination and scarcer at the source. Capital is expected to move

in the opposite direction. In a perfectly neo-classical world, this process of "factor price equalisation" (the Hecksher-Ohlin model) will eventually result in growing convergence between wages at the sending and receiving country (Haris and Todaro, 1970; Lewis, 1954; Ranis and Fei, 1961; Schiff, 1994).

At the micro-level, neo-classical migration theory views migrants as individual, rational actors, who decide to move on the basis of a cost-benefit calculation. Assuming free choice and full access to information, they are expected to go where they can be the most productive, that is, are able to earn the highest wages. This capacity obviously depends on the specific skills a person possesses and the specific structure of labour markets.

Todaro (1969) and Harris and Todaro (1970) elaborated the basic two-sector model of rural-to-urban labour migration. This influential "Harris-Todaro model" has remained the basis of neo-classical migration theory since then. The original model was developed in order to explain the apparently contradictory phenomenon of continuing rural-to-urban migration in developing countries despite rising unemployment in cities. Harris and Todaro argued that, in order to understand this phenomenon, it is necessary to modify and extend the simple wage differential approach by looking not only at prevailing income differentials as such but rather at the rural-urban expected income differential, i.e., the income differential adjusted for the probability of finding an urban job.

The expected income in the destination area depends on both the actual (or average) earnings at the destination and also on the probability of employment. The assumption is that, as long as rural-urban income differences remain high enough to outweigh the risk of becoming unemployed, the "lure of relatively higher permanent incomes will continue to attract a steady stream of rural migrants". Later, the Harris-Todaro model was refined to make it more realistic (Bauer and Zimmermann, 1998). Modifications pertained to the inclusion of other factors than unemployment that influence the expected income gains that can be achieved through migration. The potential gains in the form of higher wages should be balanced with factors such as the opportunity costs of migration, the costs of travel, (temporary) unemployment while moving and installation at the destination, and the psychological costs of migration.

Although the Harris-Todaro model was initially developed for internal migration, it can, with some modifications, also be applied to international migration. Borjas (1989; 1990) postulated the idea of an international immigration market, in which potential migrants base the choice of destination on individual, cost-benefit calculations. Further extension of the model is possible by interpreting it within a human capital framework, in which migration is seen as an investment decision. Human

capital theory enables us to theoretically explain the selectivity of migration beyond explanations focusing only on costs. Migrants are typically not representative of the communities they come from. Considering that individuals are different in terms of personal skills, knowledge, physical abilities, age, sex, and so on, there will also be differences in the extent to which people are expected to gain from migrating, that is, they can expect diverging returns on their migration investment.

Depending on the specific type of labour demand in migrant receiving areas, migrants will be selected depending on their specific skills and educational background. This makes it possible to explain theoretically why the likelihood of migration decreases with age and why individuals with higher education often exhibit a higher migration propensity (de Haas, 2008).

Many of the later refinements of neo-classical migration theory relate to the selectivity of migration. Without denying the importance of expected wage differentials, the likelihood of particular individuals and groups emigrating is also supposed to depend on both the costs and risks of migration and individual human capital characteristics. This makes migration selectivity also dependent on the specific structure and segmentation of labour markets determining chances to find employment as well as immigration policies. The combination of such factors may explain the heterogeneity and dynamism that characterize real-life migration systems.

In recent years "new economics of migration" has arisen to challenge many of the assumptions and conclusions of neoclassical theory (Stark and Bloom, 1985). A key insight of this new approach is that migration decisions are not made by isolated individual actors, but by larger units of related people- typically families or households-in which people act collectively not only to maximise expected income, but also to minimize risks and to loosen constraints associated with a variety of market failures, apart from those in the labour market (Stark and Levhari, 1982; Stark, 1984; Katz and Stark, 1986; Lauby and Stark, 1988; Taylor, 1986; Stark, 1991). Unlike individuals, households are in a position to control risks to their economic well-being by diversifying the allocation of household resources, such as family labour. While some family members can be assigned economic activities in the local economy, others may be sent to work in foreign labour markets where wages and employment conditions are negatively correlated or weakly correlated with those in the local area. In the event that local economic conditions deteriorate and activities there fail to bring in sufficient income, the household can rely on migrant remittances for support

One theory that has emerged in the migration literature that combines the macro and micro incentives is the existence of migrant networks. Migrant networks are sets of interpersonal ties that connect migrants, former migrants, and non migrants

14

in the origin and destination areas through ties of kinship, friendship, and shared community origin. This captures general relationships such as colonial bonds, socio-economic and political relationships, language as well as the micro relations through friends and family members in the diasporas. Networks increase the likelihood of international movement because they lower the costs and risks of movement and increase the expected net returns to migration (Taylor, 1986; Massey et al 1993; Massey, 1990a, 1990b). Migrant networks convey information, provide financial assistance, facilitate employment and accommodation and give support in various forms. In so doing, they reduce the cost and uncertainty of migration and therefore facilitate it (Massey et al, 1998). Networks explain the existence of continued migration unlike the other theories that explain the initiation of migration.

This view extends to an even broader type of theory - a systems approach that combines not just migrant networks and individual decision making but also includes other flows such as those of capital and goods and further suggests how all these might combine with economic political and cultural influences. A migration system may be seen as a set of places linked by flows and counter-flows of people, goods, services and information, Boyd (1989). Within the systems framework, individual/households are taking into account (in their decision to migrate or not) both influences acting within the system that originate in the potential country of destination and those related to the country of origin. This suggests that migration flows acquire a measure of stability and structure over space and time, allowing for the identification of stable international migration systems.

Despite the existence of a broad and rich theoretical literature on the determinants of international migration, not much work has been done to empirically investigate the various hypothesis. Hence there is still little conclusive evidence that fully explain the determinants and patterns of migration. The absence of sufficient empirical studies on the determinants of migration is due to the lack of reliable and comparable data on migration across countries. In order to measure migration flows, ideally one would need reliable registration data preferable distinguishing flows by origin and destination countries, character/purpose of migration, (intended) duration of migration, some demographic and socio-economic characteristics. In the absence of such data across countries, aggregated data, either in the form of time-series or regionally aggregated variables, has long been the key source of data for analysis on migration .These migration data are often estimations from censuses or large-scale survey data. Early empirical studies on migration such as Hartog and Vriend (1989); Katseli and Glytsos (1989); Lundborg (1991); Faini and Venturini (1994) all relied on this type of data.

Whiles these studies were able to conclude that income in the receiving country

positively influences migration, other important question were left unanswered. For example findings with regard to unemployment (or its proxies) for receiving and sending counties were rather ambiguous because, while Hartog and Vriend (1989), reported a negative contribution of unemployment to immigration in the receiving country (Netherlands), Katseli and Glytsos (1989) found that unemployment in Germany contributed positively to migration.

2.2.1 Economic Development and Migration

The generally established understanding is that both (or a combination of both) macroeconomic push factors in the migrant sending country and macroeconomic pull factors in the migrant receiving country are important determinants of migration motives. However, the actual migration event is an individual, family or household investment decision. Hence, taking all relevant variables into consideration, the individual living in a poor country will migrate as long as the expected wage/income (given their skill level) in the destination country minus the cost (including cost of resettlement and adjusting in the new country and the cost of overcoming immigration policy barriers) of migration is greater than the expected or actual wage or income in their home country:

$$E[W_A(S) - C(S)] > E[W_H(S)] \tag{2.1}$$

where subscripts A represents abroad and H represents home (Bhagwati and Srinivasan, 1974; Harris and Todaro, 1970; Sajaastad, 1962; Stark, 1984; 1991; Stark and Bloom 1985; Todaro, 1976).

Based on this understanding, some scholars and political leaders have often advocated the promotion of economic development in poor migrant sending countries as a way of reducing the emigration pressure (drive/push) and hence addressing the root cause of migration and ultimately reducing the migration from those countries (de Haas, 2006). However, this chapter argues that economic development or the improvement of conditions in the poor migrant sending countries will initially lead to an increased rate of emigration from those countries. This is because through development (in the initial stages) the needed funds become available to finance emigration for those who wanted to but could not migrate due to financial constraints. Hence in the short to medium term emigration from poor countries is expected to rise with economic development, though in the long run economic development will lead

to less emigration.

Rotte and Vogler (2000) used an unbalanced panel dataset covering migration to Germany from 86 African and Asian developing countries for the period 1981-1995. They showed with fixed effects estimates that there is an inverse U-shaped relationship between migration and development. The relationship is due to the combined effects of "migration-impeding factors" and "migration re-enforcing factors". The migration-impeding factors are identified as, migration cost (including psychological costs), expected unemployment in the host country, the individual's valuation of the income differentials, relative deprivation in the sending country and uncertainty and the option value of waiting. They argue that economic development in the migrant sending country also leads to other migration-impeding (reducing) factors namely, reduction of the income differential and a home preference arising from the expectation of better future prospects in the home country.

On the other hand, the migration re-enforcing factors arise from economic growth and development in the sending country. These effects of development are: the dissolution of financial restrictions, population growth, societal change, progress in communication and transport and Network effects. These factors, re-enforce the existing known migration pressures in these countries such as, low relative income, unemployment, poor living conditions, income inequality, other economic and political factors, population pressure etc.

This chapter adopts their strategy to investigate the same issue for immigration into the UK. Though Mitchell and Pain (2003) have empirically examined the determinants of immigration into the UK, they use survey data from the International Passenger Survey (IPS) and do not test for the existence of the hypothesized inverse U-shape relationship which is the subject matter of the analyses in this chapter.

2.3   Overview of UK Migration and Data Sources

In 2001, the UK had the third largest foreign born population and labour force in Western Europe after Germany and France in terms of actual numbers (Dobson, Koser, Mclaughlan and Salt, 2001). The 2005 figures, taken from the World Bank's *Migration and Remittances Fact Book*, show that with a population of about 60 million, the stock of immigrants in the UK were 5,408,118 (about 9.1% of the population) of which 54.3% are females and 5.5% refugees. The top ten immigrant source countries, from top to bottom, were Ireland, India, Pakistan, Germany, United States, Bangladesh, Jamaica, South Africa, Kenya and Australia. On the other hand, 7.0% of the population

emigrated in 2005, with the top ten emigrant destination countries being Australia, United States, Canada, Ireland, Spain, New Zealand, Germany, France, Netherlands and Italy. This section gives a brief insight to the history of migration as well as the immigration policy development in the UK and provides a summary review of the migration data sources in the UK.

The UK has experienced increasing levels of both inward and outward international migration in recent years. However, traditionally, Britain had been a country of emigration until the late 1980s and early 1990s, and has had a long history of international migration dating back before the Norman invasion in 1066AD. Immigration into the UK began to increase gradually in the twentieth century mainly because there were labour shortages in the UK and other European countries. It is also because there were large numbers of people from across the British Empire (Africa, the Caribbean's and the Indian subcontinent) who had fought for the British in the two World Wars, and needed to find work. Despite the increasing inflows of migrants, the UK remained a country of net emigration until 1980s and early 1990s when the intake of migrants (most of whom were British citizen) from developing countries began to more than compensate for the outflow of British citizens (Zlotnik, 1999).

In terms of immigration policy development, Hatton and Price (1998) point out that before the Aliens Act of 1905, followed by subsequent acts in 1914, 1919 and 1921, any immigrants could enter and leave the UK as they pleased. The acts together gave the Home Secretary the power to refuse entry to criminals and to those who were infirm or could not support themselves. However, all subjects of the Crown were entitled to free entry to Britain and this covered all Britain's Colonies and Dominions. This privilege was reaffirmed and extended to the newly independent countries in the 1948 Nationality Act. However, the 1971 Immigration Act is regarded as the first significant and comprehensive UK immigration policy. It redefined British citizenship in line with the immigration policy and ended the free entry of British subjects from the Commonwealth who could not prove that they, their parent or grandparent had be born, adopted or naturalised in Britain. It fully came into force on 1st January 1973 and clearly defined visa requiring nationals - a firm foundation of UK immigration policy.

Since this development the main legislation bearing on immigration in the UK are the British Nationality Act 1981, the Immigration Act 1988, the Asylum and Immigration Appeals Act 1993, the Asylum and Immigration Act 1996, the Immigration and Asylum Act 1999, the Nationality, Immigration and Asylum Act 2002, Immigration, Asylum and Nationality Act 2006 and the UK Borders Act 2007. All of these have been aimed at streamlining and tightening the rules of entry. Although immigration into the UK has continued to rise in spite of the restrictive policies, some of the new

patterns of immigration may also have been a result of these policies. For instance, the growth of asylum seeker applications increasingly became a significant feature of immigration in the UK as manufacturing declined and work permits became harder to get unless one had specialist skills or professional trading. Similarly the data shows that the foreign work force is generally employed in more highly skilled occupations than the domestic (Salt and Millar, 2006).

It is therefore obvious that any comprehensive immigration dataset for the UK will start from the 1973. However, there is not a single, all-inclusive system in place to measure all movements of population into and out of the UK, neither is there a single comprehensive source of migration data in the UK. A range of sources provides statistical data relating to migrant stocks and flows but, inevitably, all sources have limitations. For example, in respect of sample size (coverage), population included, details recorded, time-period covered and changing definitions of a migrant overtime.

The sources of international migration data in the UK include: Censuses, the International Passenger Survey (IPS), the Labour Force Survey (LFS) and The Total International Migration Estimates (TIM). In addition to these, some administrative sources are often used to quantify and study UK immigrant stocks and flows even though these are typically not designed to capture information solely on international migration. These include: the NHS Central Registration and Patient Register Data System; and the National Insurance Number allocations to Overseas Nationals (NINos). The Worker Registration Scheme (WRS) and the Control of Immigrations Statistics are the only two administrative data sources that are specifically designed to capture information solely on international migration. However, the WRS was only introduced in 2004 in relation to the new countries that joined the European Union.

The decennial UK Census provides a very rough estimate of the percentage of residents that are foreign born but is of limited use overall as a source of migration data. The Census questions include place of birth and place of residence a year ago but there is no question on nationality and year of entry into the UK. The question on Ethnic origin was asked for the first time in 1991 but the information is of little use, as increasing numbers of people in ethnic minority groups are British Citizens, many of whom were born in the UK (Dobson, Koser, Mclaughlan and Salt, 2001). The census data on migration provides a snap shot of the migrant stocks at the time of each census rather than flows of migrants. Despite the question on place of birth the census data made available only shows foreign born residents by region of birth (e.g. West Africa, East Africa, etc) rather than country of birth.

The IPS is a continuous survey carried out by the Office for National Statistics (ONS), based on face-to-face interviews with a random sample of passengers as they

enter or leave the UK by the principal air, sea and tunnel routes. The main aims of the IPS are to collect data in order to measure travel expenditure and how it impacts on the UK balance of payments (on the travel account); provide detailed information about overseas visitors to the UK for tourism policy; provide data on international migration; and collect travel information on passenger routes as an aid to aviation and shipping authorities. Travellers passing through passport control are randomly selected for interview and all interviews are conducted on a voluntary and anonymous basis. Interviews are carried out throughout the year normally covering 0.2 to 0.3 percent of travellers. The IPS is the only primary international migration data source that provides information on both immigrants and emigrants. It also provides information on migrants' citizenship, country/region of origin and destination, age, sex and occupational status. In spite of this, disaggregated IPS data for migrants by country of origin and destination are not reliable (as a result of high standard errors) due to the small sample size but also the fact that most of the surveyed people are short term travellers who do not qualify as migrants.

The Labour Force Survey (LFS) is a random household survey that collects a wide range of variables about the people in the labour market, including their nationality and country of birth. The surveyed include both UK and foreign citizens and therefore provide statistics on both workers with foreign citizenship and foreign born workers, including the diverse group of people born outside the UK. Data provided by the LFS include nationality, age, sex, occupation and industry, region of destination, ethnicity and year of entry into the UK for foreign nationals. Like the census data, the LFS provides migrant stock data rather than flow data.

The Total International Migration (TIM estimates) is the official source of overall international migration statistics in the UK. It combines data from different sources that have different characteristics and attributes in order to produce estimates of both inflows and outflows of migrants. The main sources for the TIM estimates are migration data from the IPS, Home Office data on asylum seekers and their dependants, LFS data on the geographical distribution of in-migrants, and the Irish Central Statistics Office estimates of migration of all citizenships between the UK and the Irish Republic. In theory the TIM is the most comprehensive source of international migration data available in the UK, given that it draws on the strengths of the various sources and provides data for both immigrants and emigrants as well the demographics of these groups. However the TIM data are not available for country level analysis. This is because once disaggregated to country level, the data loses significance due to high standard errors. This problem originates from the issue of small sample size inherent in the IPS and LFS (ONS, 2006; Dobson, Koser, Mclaughlan and Salt, 2001).

Given the inadequacy of the various international migration data available, one may turn to administrative datasets as sources for estimating immigrant stock or flows in the UK. One such administrative dataset is the Worker Registration Scheme which collects data on nationals of the eight Central and Eastern European (A8) countries that joined the EU in May 2004 who have registered to work in the UK. The purpose of the scheme is to monitor the access of A8 nationals to the UK labour market and to restrict access to benefits. Although the A8 nationals are required to register for each employer they work for, the WRS statistics are only published for first time applicants only. At present there is no process for de-registering from the WRS hence the statistics are a measure of inflows only. Apart from the WRS, the Department of Work and Pensions (DWP) produces annual statistics on the allocations of National Insurance Number to Overseas (NINos) nationals arriving in the UK for employment/self employment purposes, or to claim benefits and tax credits. Although the statistics may provide a measure of inflows for overseas nationals registering for a NINO, there are a number of shortcomings. First the NINo figures exclude migrant groups who do not work or claim benefits. Secondly there is often a substantial lag between a migrant entering the UK and being allocated a NINo. Moreover there is no process of NINo de-registration and hence the difficulty to use NINo figures to capture flows and stocks effectively.

The Control of Immigration Statistics (described further in the next section) is however, by far, the most important administrative source for immigrant inflow data especially for nationals of countries that require visas to enter, stay or work in the UK. Although it does not provide records for outflows of migrants (native and non-natives), it provides data on all persons, entering the UK, by country of origin, purpose of journey, intended duration of stay and even information for those refused entry into the UK.

2.4   Data and Method

The aim of the analyses in this chapter is to test the hypothesis that the relationship between the rate of emigration from developing countries to the UK and economic development in those countries is non-linear (inverse U-shaped). The key variables of interest are, therefore, emigration rates from developing countries to the UK and the level of economic development in those countries over time. The study relies on data from the Control of Immigration Statistics publications for the figures on immigration into the UK. The Control of Immigration Statistics (CIS) is an administrative dataset on migrant inflows to the UK published annually as part of a compendium report covering all areas of immigration control for the UK parliament as a 'command paper'.

These command papers have gradually increased in scope over the years as more statistics from the Home Office administrative systems became available and now covers: people applying abroad for visas to enter the UK ('Entry Clearance'); people given permission to enter the UK, and persons refused entry ('Entry control'); people granted extensions to visas in the UK, and those granted settlement ('After-entry'); people granted British Citizenship; people detained under the Immigration Act; people in violation of immigration law, and those removed from the UK; and people seeking asylum in the UK. By definition, British citizens, EU nationals and others who have a right of abode in the UK are exempt from control and only appear in the gross totals of arrivals. For those non-EU nationals granted entry for more than six months the following data are recorded: date of arrival, length of stay granted, nationality, admission category, date of birth, sex, number of children, and date of departure. The data, which are regarded as generally reliable by the Home Office, have been published since 1973 (this the year the watershed Immigration Act of 1971 came into force) though with increasing level of detail over the years.

The CIS offers three main advantages for the purposes of this chapter. First, the level of immigrant detail regarding the purpose of the journey and the intended duration of stay contained in the CIS allow the flexibility of defining an immigrant in more than one way (including the UN recommended definition of an international migrant) for the purposes of analysis. Secondly, the CIS provides the most reliable figures for immigrants inflows disaggregated by country of origin. This allows the study to focus on developing countries rather aggregates. Thirdly the length of the period for which this data is available provides an opportunity to study the short, medium and long term relationship between immigration rates and improvement of economic conditions in the migrant source countries.

Even though the study relates to immigration from developing countries in general, the analysis in this chapter focuses only on immigration from developing countries in Africa, Asia, South and Central America. The World Bank classification of developing counties is used, and observations for all non-developing countries as well as all developing countries in European and Oceania are dropped from the data set.

The level of economic development in the migrant sending country (the main independent variable of interest) is measured by the per capita gross nation product (GNP). The GNP data as well as all the data for the other economic control variables are sourced from the World Bank's World Development Indicators (WDI). The political situation indicators are taking from the freedom house indices available from Freedom House International. Bilateral trade with the UK data used as an indicator for migrant networks are collected from the Source OECD database.

2.4.1 Benchmark Model and Empirical Method

In line with Rotte and Vogler (2000), this study adopts simple regression procedures with a parsimonious model that explores the panel nature of the data. In theory, and in accordance with the literature, the argument of this chapter is that the rate of emigration from developing country to the UK is a non-linear (inverse U-shaped) function of country income (economic development) level. The level of economic development in the migrant sending country has two opposing effects on the rate of emigration. On the one hand, it determines the emigration pressure while on the other hand it also determines the ability (financial power) to migrate. For example, a high pressure to emigrate (in search of better standard of living) emanates from low economic development. However, if incomes are too low and there is no access to funding to cover the cost of migration, the rate of emigration may be low. But when income increases, although the pressure to migrate reduces, the funds to do so become available and those who could not afford to migrate are now able to do so hence the emigration rate increases.

This positive relationship between income and the emigration rate will continue to be positive until the incomes are high enough to render the pressure to emigrate negligible. Thus, while accepting that the individual's decision to migrate depends on by how much the difference between their expected income (given their skill level) and the cost[2] of immigration (including personal cost) is greater than their income at home, it is also recognised that their ability to finance the cost of migration depends on the general economic conditions (or access to funding). The empirical model from this postulated relationship is given by:

$$m_{iukt} = \beta_0 + \beta_1 y_{ukit} + \beta_2 y_{it} + \beta_3 y_{it}^2 + \beta_4 \acute{X}_{it} + \beta_5 \acute{V}_i + \beta_6 D_t + \beta_7 C_i + \varepsilon_{it} \qquad (2.2)$$

The dependent variable, m_{iukt} , represents the immigration rate from country i to the UK at time t. The income (wages) of the migrant sending country relative to the UK at time t is given by y_{ukit}. The GNP per capita of the sending country and its squared term (to capture the non-linearity) are given by y_{it} and y_{it}^2. $\acute{X}_{it}$ and $\acute{V}_i$ respectively represent the vectors of time-varying and non-time-varying control variables while D_t and C_i respectively represent year dummies and country dummies. The idiosyncratic error term is given by ε_{it}.

The rate of immigration m_{iukt}, is defined as the annual number of immigrants from developing country i to the UK divided by the population of country i. Given

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[2]The destination country's immigration policy may be regarded as a cost item as well

the availability of various categories of immigrants in the CIS data, four alternative definitions of migrants are explored. The first one, *Immigration Rate(1)*, used in the benchmark model is a strict definition comprising of persons included in the immigrant categories of work permit holders (six months and above), dependents of work permit holders, those given leave to remain under marriage, those accepted for settlement on arrival and others granted leave to enter for 12 month (including clergy, etc. but not diplomatic officials).

The other three alternative definitions used for robustness checks are *Immigration Rate(2)* (which expands *Immigration Rate(1)* to include students and refugees); *Students* (only person in the student categories); and *Refugees* (only those in the refugee categories). The data for refugees starts from 1992. The independent variables of interest in this study are: the income (wage) differential between UK and country i (y_{ukit}); the immigrant sending countries' GNP per capita; and the GNP per capita squared.

Using GNP per capita as a proxy for income (wages), y_{ukit} , is defined as UK's per capita income divided by the per capita income of the sending country for each year. The GNP data are collected from the World Bank's WDI database. All GNP data used are measured in current US dollars. The coefficient of the per capita income ratio, y_{ukit} is therefore expected to be positive since an increase in the ratio is expected to result in a higher migration push. In other words, an increase in the wage differential between UK and country is expected to increase immigration from that country to the UK assuming the cost of immigration remains the same. GNP per capita (y_{it}) is included as a measure of economic development in the sending country. It is expected to have a positive coefficient while the squared GNP per capita is expected to have a negative coefficient (i.e. if the inverse U-shape relationship exists).

The vector, $\acute{X}_{it}$, contains the following variables related to the migrant sending country: GDP growth rate; Urban Population growth rate; bilateral trade per head with the UK; and the Political Rights and Civil Liberties Index. GDP growth rate in the migrant sending country is a proxy for unemployment rates which are hardly available for nearly all the developing countries. The growth in GDP captures the level of economic activity and may reflect the use or absorption of labour hence it is expected to have a negative coefficient. The growth in share of the urban population in the migrant sending country controls for the generally mobility of individuals in the sending country as well as the emigration pressure built up as a results of urban population density. It is expected to have a positive coefficient. As a means of controlling for migrant network effects, bilateral trade per head with the UK is included in the model. This is defined as the annual exports plus imports of the migrant sending country to and from the UK divided by the population of the

sending country. Ideally immigrant stocks at the beginning of the period would be a better measure but reliable estimates of stocks at the beginning of the period are not available. More contacts (networks) in the UK is expected to make immigration to the UK easier or less costly for potential immigrants.

The effect of political factors in the sending country on emigration is captured by the Freedom House Index for political rights and civil liberties. Political rights in the context of the Freedom House Index enables people to participate in the political process, while civil liberties cover the freedom to express views, and to develop institutions and personal autonomy apart from the state, e.g., by freedom of speech, assembly or religion. For each of the two categories there is an index ranging from 1 (totally free) to 7 (not free at all) according to a checklist based on published source materials, reports from human rights organizations and governments, and newspapers. The analyses in this chapter combine the scores from these two categories into a single variable that range from 1 to 14, with 1 equal to best political conditions and 14 equal to worst political conditions.

To control for the effect of common language with the UK, a dummy variable *English Speaking* is included in the model which takes the value 1 if English is the official language in the immigrant sending country and 0 otherwise. A dummy variable, *commonwealth*, is also included to control for any historic and colonial relations a country might have with the UK. These dummy variables, together with *Distance* (the great circle distance measure from the capital city of the migrant sending county to London) make up the vector, $\acute{V}_i$.

Using panel data techniques will make it possible to better deal with heteroscedasticity, but also to explore and control for omitted country specific variables (unobserved country heterogeneity). The fixed effect model is chosen over the random effects model as the preferred panel data model for the analysis in this chapter to control for omitted variables that differ between countries but are constant over time. Nevertheless OLS and random effects estimates are obtained for comparisons. The OLS estimates are obtained with robust standard errors hence controlling for heteroscedasticity revealed by the Breusch-Pagan test for heteroscedasticity. The Breusch-Pagan Lagrange multiplier (LM) test is also undertaken to test the null hypothesis that the variances of groups (in the random group effect model) are zero. If the null hypothesis is not rejected then the OLS regression model is appropriate. The time-invariant variables, $\acute{V}_i$ as well as the country dummies are only used for the OLS and Random effects estimates.

Table 2.1: List of Migrant Sending Countries and Year Frequencies

Country	Year Freq.	Country	Year Freq.
Algeria	30	Malaysia	33
Angola	13	Mauritius	33
Argentina	33	Mexico	33
Bangladesh	33	Morocco	30
Brazil	33	Nigeria	33
Chile	33	Pakistan	33
China	33	Peru	33
Colombia	33	Philippines	30
Congo, Dem. Rep.	13	Sierra Leone	33
Cuba	20	Somalia	28
Egypt, Arab Rep.	33	South Africa	33
Ethiopia	28	Sri Lanka	33
Ghana	33	Sudan	28
Guyana	33	Syrian Arab Republic	28
Hong Kong, China	33	Tanzania	33
India	33	Thailand	28
Indonesia	33	Tunisia	30
Iran, Islamic Rep.	33	Turkey	33
Iraq	33	Uganda	33
Jamaica	33	Uruguay	11
Jordan	28	Venezuela, RB	33
Kenya	33	Yemen, Rep.	13
Lebanon	28	Zambia	33
Libya	28	Zimbabwe	26
		Total	1,430

2.4.2 Descriptive Statistics

The final dataset is an unbalanced panel of 1,430 county-year observations comprising data from 1973-2005 (33 years) for 48 countries in Africa, Asia and South and Central America. The countries and year frequencies are shown in Table 2.1. The table shows that there are 11 years of data for Uruguay (1978-1992), while Angola, the Democratic Republic of Congo and Yemen all have 13 years of data (1993- 2005). Table 2.2 presents the distribution and summary definitions for all the independent variables. With a logged mean per capita income differential of 1.42 and a standard deviation of 0.24 the table shows that on average UK has a very large per capita income compared to the migrant sending countries. However the minimum of 0.97 indicates that in some instances the per capita income of the migrant sending developing country exceeds the UK per capita income.

The average score for political rights and civil liberties across all the countries over the period observed is 9.02. This indicates that the political situation in most of the countries is quite bad though with significant differences across countries (standard deviation of 3.25). On average the countries in the sample grew at a rate of 3.38 percent with a large standard deviation of 5.61. However, some countries experienced large negative GDP growth (e.g. Lebanon was negative 42 percent in 1989 and Iraq was negative 41 percent in 2003) while others experience large GDP growth over the period. Less than half of the sample (36 percent) are English speaking countries while 42 percent of the sample are Commonwealth countries.

Figure 2.1 shows that in spite of the large GDP gab between per capita income in the UK and developing countries, the annual immigration from all developing countries to the UK is relatively low than immigration from the US alone. This may be an indication that due large costs and high immigration barriers people from poor developing countries are less able to migrate compared to the people from more developed countries.

Figure 2.2 shows that there is an upward trend over time in the average per capita income across the developing countries in the sample. Together, figures 2.1 and 2.2 indicate that both per capita income and migrant flows in to the UK are increasing over the period. This supports the hypothesis that migrants flows from developing countries increases as the conditions in those countries improve.

Table 2.2: Variables and Descriptive Statistics

Variable	Definition	Observ.	Mean (Std Dev)	Min	Max
Per Capita Income Difference	UK GNP per capita/ GNP per capita of sending country	1289	1.42 (0.24)	0.97	2.31
Per Capita Income	GNP per capita of sending country	1289	6.85 (1.10)	4.38	10.23
Per Capita Income Squared	GNP per capita of sending country squared	1289	48.10 (15.34)	19.20	104.63
GDP Growth	Annual GDP growth rate of sending country	1308	3.83 (5.61)	-42	46
Political rights and civil liberties index	Freedom house index a scale of 1-14 where 1= best political situation	1384	9.02 (3.25)	2	14
Urban Population growth rate	Annual growth in Urban population in sending country	1430	47.42 (23.15)	7	100
English Speaking (Official Language)	Dummy = 1 if English is the official language; 0 otherwise	1430	0.36 (0.48)	0	1
Commonwealth	Dummy = 1 if member of British commonwealth	1333	0.42 (0.49)	0	1
Bilateral Trade	exports to + imports / population of sending country	1403	2.26 (0.20)	1.59	2.90
Distance from the UK	Great Circle distance from the Capital of sending country to London	1333	8.74 (0.49)	7.41	9.37

All continuous variables are logged for convenience in explaining results except for growth rates, Urban population growth rates and political rights and civil liberties

28

Figure 2.1: UK Immigration Trends
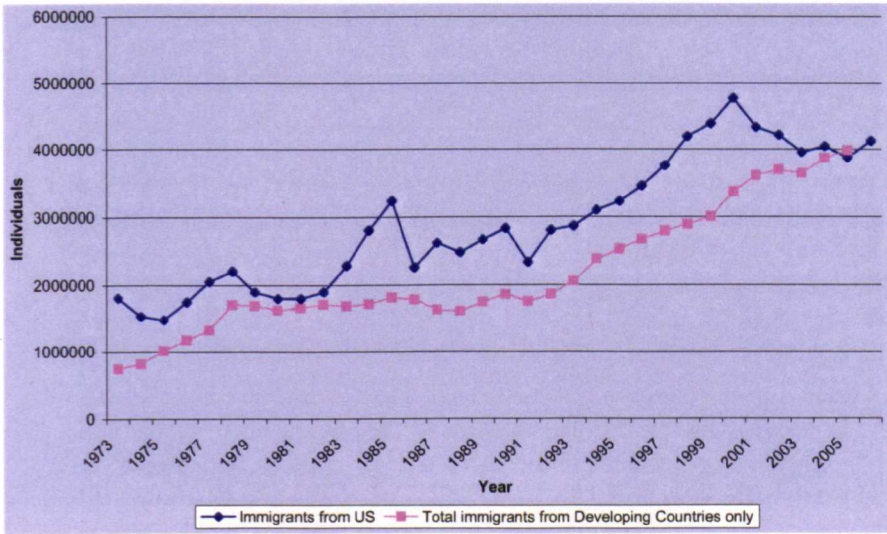
Figure 2.2: Average Per capita income Over Time

... and humped relationship between petroleum development and ...
... related to the rise. Table 2.3 presents the results for the ...
... petroleum development. Taken together ...
... However, the per capita income has ...
... highest levels in the ... Smart, ... indicates that the R-squared ...
... are significant in explaining variables and they have strong statistical ...
...
... is only 0.33. In addition, the F-statistic the ...
... hypothesis that all the explanatory variables the remains ...
... probability of 0.... associated ...

The probability p-value for the Breusch-Pagan Lagrange ...
... value of squares also indicates that the null hypothesis ...
... can not be rejected at ...%. Thus, there exists some level of ...
...

2.5 Results

A series of simple regression analyses are undertaken to test the hypothesis that there is an inverse U-shaped relationship between economic development and immigration from poor counties to the UK. Table 2.3 presents the results for the benchmark model estimated by OLS, random effects and fixed effects. The table shows high R-squared test scores: 0.87 for both the OLS and the Random effects (overall) estimates and 0.70 for the fixed effects within estimator. This indicates that the models (1, 2 and 3) are well fitted by the explanatory variables and they have strong predictive powers. The R-squared test scores are, in fact, all higher than the ones obtained by Rotte and Vogler (2000) for Germany. In particular the R-squared for their benchmark fixed effects model is only 0.33. In addition to the R-squared, the Wald Test of over overall significance is also reported in table 2.3 for the random effects model (2). This rejects the null hypothesis that all the explanatory variables in the random effects model are jointly not significantly different from zero.

The test statistic and p-value for the Breusch-Pagan Lagrange multiplier test shown at the bottom of the table also indicates that the null hypothesis that the OLS estimates are appropriate is rejected. Thus, there exists some kind of group effect that needs to be controlled for. This is in spite of the fact that both year and migrant sending country dummies are included in the OLS and random effects regressions to control for both time-specific and country-specific effects that are not accounted for by the explanatory variables. The coefficient estimates for the time and country dummies are not included in the results tables to allow better presentation and focus.

2.5.1 Economic Development and Migrant inflows

After controlling for observed and unobserved as well as time-varying and country specific covariates, the results show that there is an inverse U-shaped relationship between economic development and immigrant flows to the UK from developing countries in Africa, Asia and Central and South America. Specifically, the results show that: first, as the wage differential increases, the rate of immigration also increases; second, as the per capita income in the migrant sending country rises, the flow of immigrants from that country to the UK also rises; and third, as the per capita income rises further, after some point, immigration from that country to the UK starts to fall.

In other words, a one percent rise in the income differential is associated with a 0.4 percent increase in the rate of immigration to the UK. However, for a given income differential, increments in per capita income leads to increments in the rate of

31

	Model 1	Model 2	Model 3
Observations	1191	1191	1191
R-squared	0.8741	0.8741	0.7002 (within)
Wald Test		$\chi^2(81) =7699.9$ P-value 0.000	
	OLS	Random Effects	Fixed Effects
Per Capita Income Difference	0.375*** (0.081)	0.375*** (0.064)	0.375*** (0.064)
Per Capita Income	0.185*** (0.048)	0.185*** (0.038)	0.185*** (0.038)
Per Capita Income Squared	-0.008*** (0.002)	-0.008*** (0.002)	-0.008*** (0.002)
GDP Growth	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Political rights and civil liberties index	-0.001* (0.000)	-0.001* (0.000)	-0.001* (0.000)
Urban Population growth rate	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
English Speaking (Official Language)	-0.165*** (0.010)	0.178*** (0.014)	
Commonwealth	0.249*** (0.022)	0.249*** (0.020)	
Bilateral Trade	0.074*** (0.016)	0.074*** (0.016)	0.074*** (0.016)
Distance from the UK	-0.027*** (0.006)	-0.027*** (0.007)	
Constant	-1.089*** (0.313)	-1.089*** (0.248)	-1.235*** (0.250)
Breusch-Pagan Lagrange multiplier Test	$\chi^2(1) =20.70$ P-value: 0.000		

All regressions include time dummies for all the years except 1973, as the base, which are not reported in this table. The regressions also include country dummies for the immigrant sending countries though these drop out in the fixed effects model. Robust standard errors are shown in brackets for the OLS. * indicates significance at 1%; ** indicates significance at 5%; and *** indicated significance at 10%.

immigration up to a certain per capita income level after which any further increments in the per capita income leads to a fall in the rate of immigration.

These findings are in line with the findings by Rotte and Vogler (2000). They argue that the positive initial relationship at low income levels may be explained by the depletion of financial restrictions, with the rising incomes producing the needed resources for migration. However, (in the long run) at higher income levels, the negative relationship observed may be due to the effect of home preference (with higher individual valuation of incomes in the home country).

The results are very similar across all the three models (OLS, random effects and fixed effects), however, as indicated by the Breusch-Pagan LM test, the OLS estimates are not appropriate as they do not fully control for group effects. The random effects estimates on the other hand, though statistically better than the OLS, do not control for unobserved country heterogeneity properly in spite of the country dummies. In

the addition, variable such as *"commonwealth"* and *"English speaking"* are bound to be highly correlated and hence the random effects model might suffer from a higher level of multicollinearity threat than the fixed effects model. Hence more weight is placed on the fixed effects estimates than the other two for the findings in this chapter.

A series of sensitivity analysis are undertaken to establish the robustness of the above findings. Firstly, the rate of immigration is redefined to include *students* and *refugees* as immigrants. Secondly, separate estimates are obtained for the rate of refugee inflows and the rate of student inflows as dependent variables. The results shown in Table 2.4 and 2.5 indicate that redefining the rate of immigration (the dependent variable) to include refugees and students or to focus on refugees and students separately does not change the benchmark findings related to the relationship between economic development and migrant inflows. The inverse U-shape relationship between the two is still observed. In fact, compared to the benchmark results, the effects seem to be stronger (with larger coefficients) for refugees but weaker for students.

Table 2.4: Regressions with Students and Refugees included as Immigrants

	Model 4	Model 5	Model 6
Observations	1191	1191	1191
R-squared	0.812	0.812	0.555 (within)
Wald Test		$\chi^2(81) =4787.9$ P-value 0.000	
	OLS	Random	Fixed
Per Capita Income Difference	0.331*** (0.068)	0.331*** (0.060)	0.331*** (0.060)
Per Capita Income	0.159*** (0.043)	0.159*** (0.035)	0.159*** (0.035)
Per Capita Income Squared	-0.005** (0.002)	-0.005*** (0.002)	-0.005*** (0.002)
GDP Growth	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Political Rights and Civil Liberties	-0.001** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Urban Population Growth Rate	0.001** (0.000)	0.001*** (0.000)	0.001*** (0.000)
English Speaking (Official Language)	-0.080*** (0.007)	0.093*** (0.013)	
Commonwealth	0.164*** (0.022)	0.164*** (0.019)	
Bilateral Trade	0.164*** (0.016)	0.164*** (0.015)	0.164*** (0.015)
Distance from the UK	-0.013** (0.006)	-0.013** (0.006)	
Constant	-1.130*** (0.281)	-1.130*** (0.232)	-1.185*** (0.234)

All regressions include time dummies for all the years except 1973, as the base, which are not reported in this table. The regressions also include country dummies for the immigrant sending countries though these drop out in the fixed effects model. Robust standard errors are shown in brackets for the OLS. * indicates significance at 1%; ** indicates significance at 5%; and *** indicated significance at 10%.

Another set of sensitivity analyses undertaken involves sample splitting. Unlike Rotte and Vogler (2000) who split their sample into African and Asian developing countries,

Table 2.5: Regressions with Rates of Refugees and Students inflows as dependent Variables

| | Refugees(1992-2005) | | Students | |
	Model 7	Model 8	Model 9	Model 10
Observations	311	311	1191	1191
R-squared	0.610	0.283(within)	0.794	0.437 (within)
Wald Test	(58) =379.4		$\chi^2(81)$ 4278.3	
P-value	0.000		0.000	
	Random	Fixed	Random	Fixed
Per Capita Income Differential	1.935***	1.760***	0.189***	0.189***
	(0.602)	(0.601)	(0.065)	(0.065)
Per Capita Income	1.661***	1.479***	0.100***	0.100***
	(0.422)	(0.425)	(0.038)	(0.038)
Per Capita Income Squared	-0.087***	-0.076***	-0.002	-0.002
	(0.021)	(0.022)	(0.002)	(0.002)
GDP Growth	0.001	0.001	0.000	0.000
	(0.001)	(0.001)	(0.000)	(0.000)
Political Rights and Civil Liberties	0.010***	0.008**	-0.000	-0.000
	(0.004)	(0.004)	(0.000)	(0.000)
Urban Population Growth Rate	-0.004	0.001	0.000	0.000
	(0.003)	(0.003)	(0.000)	(0.000)
English Speaking	0.061		-0.010	
	(0.041)		(0.014)	
Commonwealth	-0.279		0.088***	
	(0.221)		(0.020)	
Bilateral Trade	-0.090	-0.185	0.195***	0.195***
	(0.131)	(0.136)	(0.016)	(0.016)
Distance from the UK	0.839		-0.000	
	(0.601)		(0.007)	
Constant	-17.037***	-8.771***	-0.873***	-0.836***
	(5.495)	(2.875)	(0.251)	(0.253)

All regressions include time dummies for all the years except 1973, as the base, which are not reported in this table. The regressions also include country dummies for the immigrant sending countries though these drop out in the fixed effects model. * indicates significance at 1%; ** indicates significance at 5%; and *** indicated significance at 10%.

the sample splitting done in this chapter is based on two per capita income thresholds identified by the per capita income distribution. As shown in table 2.2 above, the mean and standard deviations for the logged per capita income variable are 6.85 and 1.10 with a minimum value of 4.38 and a maximum value of 10.23. This implies that the mean per capita income lies between 6 and 8 (one digit lower and upper bounds of the mean range). The values 6 and 8 are therefore taken as threshold values and used to exogenously splitting the sample for further sensitivity analyses. Thus, for the threshold value of 6, the benchmark model estimates (random and fixed effects) are obtained for the sub-sample with per capita income less than or equal to 6. This is then compared with estimates for the sub-sample that has per capita income greater than 6 and the results are shown in Table 2.6. The results corroborate the inverse U-shape relationship observed in the benchmark model for both the sub-samples. However, the effects seem to be stronger (in terms of coefficient sizes) for the ≤ 6 per capita income sub-sub-sample.

The sample is similarly split by the upper bound mean threshold value of 8 for

Table 2.6: Exogenous Sample Split A

	Sample where logged Per Capita Income ≤ 6.0		Sample where logged Per Capita Income > 6.0	
	Model 11	**Model 12**	**Model 13**	**Model 14**
Observations	345	345	846	846
R-squared	0.886	0.614	0.902	0.760
	Random	**Fixed**	**Random**	**Fixed**
Per Capita Income Differential	1.022***	1.022***	0.420***	0.420***
	(0.272)	(0.272)	(0.135)	(0.135)
Per Capita Income	1.466***	1.466***	0.196***	0.196***
	(0.343)	(0.343)	(0.062)	(0.062)
Per Capita Income Squared	-0.107***	-0.107***	-0.008***	-0.008***
	(0.025)	(0.025)	(0.003)	(0.003)
GDP Growth	0.001**	0.001**	-0.000*	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
Political Rights and Civil Liberties	-0.001	-0.001	-0.001**	-0.001**
	(0.001)	(0.001)	(0.000)	(0.000)
Urban Population Growth Rate	0.003***	0.003***	0.001***	0.001***
	(0.001)	(0.001)	(0.000)	(0.000)
English Speaking	0.153**		0.458***	
	(0.068)		(0.054)	
Commonwealth	-1.149***		-3.411***	
	(0.349)		(0.368)	
Bilateral Trade	0.021	0.021	0.083***	0.083***
	(0.040)	(0.040)	(0.017)	(0.017)
Distance from the UK	2.421***		1.899***	
	(0.727)		(0.198)	
Constant	-26.836***	-6.076***	-15.459***	-1.344***
	(6.554)	(1.536)	(1.500)	(0.455)

All regressions include time dummies for all the years except 1973, as the base, which are not reported in this table. The regressions also include country dummies for the immigrant sending countries though these drop out in the fixed effects model. * indicates significance at 1%; ** indicates significance at 5%; and *** indicated significance at 10%.

estimation and the results are shown in Table 2.7. It is seen that at the threshold value of 8, the results differ between the two sub-samples. While the ≤ 8 per capita income sub-sample confirms the inverse U-shaped relationship, the > 8 per capita income does not. The regression for the sub-sample with a per capita income greater than 8 produces insignificant coefficient estimates for all the key variables. The results therefore generally suggest that while the hypothesized inverse U-shaped relationship is prevailing, its existence and strength may be driven by sub-samples of the data defined, for example, by different thresholds of per capita income.

2.5.2 Other Variables

With regard to other variables, the results are largely in accordance with theoretical considerations and expectations. GDP growth is found not have any significant impact on migrant inflows in to the UK. This is true for all the robustness checks, except in Table 2.6. The table shows that GDP growth has a positive effect on migrant

Table 2.7: Exogenous Sample Split B

	Sample where logged Per Capita Income ≤ 8.0		Sample where logged Per Capita Income > 8.0	
	Model 15	Model 16	Model 17	Model 18
Observations	1036	1036	155	155
R-squared		0.696		0.831
	Random	Fixed	Random	Fixed
Per Capita Income Differential	0.407***	0.407***	-0.816	-0.816
	(0.073)	(0.073)	(1.287)	(1.287)
Per Capita Income	0.192***	0.192***	-0.815	-0.815
	(0.048)	(0.048)	(0.706)	(0.706)
Per Capita Income Squared	-0.007***	-0.007***	0.040	0.040
	(0.003)	(0.003)	(0.034)	(0.034)
GDP Growth	-0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Political Rights and Civil Liberties	-0.000	-0.000	-0.005***	-0.005***
	(0.000)	(0.000)	(0.001)	(0.001)
Urban Population Growth Rate	0.002***	0.002***	-0.003**	-0.003**
	(0.000)	(0.000)	(0.001)	(0.001)
English Speaking	0.422***		0.130	
	(0.045)		(0.174)	
Commonwealth	-2.963***		0.112*	
	(0.306)		(0.061)	
Bilateral Trade	0.062***	0.062***	0.007	0.007
	(0.017)	(0.017)	(0.061)	(0.061)
Distance from the UK	1.667***		0.573	
	(0.165)		(0.513)	
Constant	-13.755***	-1.322***	0.000	5.386
	(1.264)	(0.295)	(.)	(4.806)

All regressions include time dummies for all the years except 1973, as the base, which are not reported in this table. The regressions also include country dummies for the immigrant sending countries though these drop out in the fixed effects model. * indicates significance at 1%; ** indicates significance at 5%, and *** indicated significance at 10%.

inflows for the sub-sample with per capita income up to the logged value 6, whereas it has a negative but negligible effect for the sub-sample with a per capita income greater than 6. A negative effect is expected because GDP growth leads to more employment opportunities in the home country, however, a positive coefficient for growth rate at a relatively lower per capita income level is also plausible since GDP growth may also lead to the weakening of financial constraints with GDP growth providing needed resources for migration.

The effect of political rights and civil liberties is negative for nearly all the estimates except the estimates for refugees where the effect is positive. This is as expected and in line with Rotte and Vogler (2000), who ague that the negative effect indicates that free movement and hence more migration might be facilitated by a good political climate, in general. However, for refugee migration, it is primarily the outcome of poor political and human rights conditions. Urban population growth rate in the migrant sending country is expected to have a positive effect on the rate of immigration. This is generally found to be the case. However, it has no significant effect for refugees and students and tends to have a negative effect for the sub-sample with a per capita

income greater than the average.

Based on the random effects estimates, it is seen that immigration to the UK tends to increase if the sending country is an English speaking country though this does not matter for student and refugees. Similarly, the benchmark model shows that immigration tends to increase if the country is a member of the British Commonwealth though the effect is negative for refugees and in the sample split results. As expected bilateral trade per head with the sending country, a proxy for contacts/networks has a positive impact on the rate of immigration to the UK while distance of the sending country from the UK has a negative impact on the inflow of migrants.

2.6 Conclusion

This chapter undertakes a panel data analysis of the determinants of migrant flows using administrative immigration data for the UK from 1973 to 2005 to ascertain the non-linear relationship between economic development levels in the migrant sending country and the migrant inflows. The study is motivated by the misconception that there is a linear relationship between the level of economic development and emigration, such that, helping improve general economic conditions (through trade and aid) in poor countries would reduce the rates of emigration from those countries to the developed world. This simplistic view is apparent in the calls, by some scholars, politician and development practitioners, to promote economic development through trade and aid as a way of addressing the root cause of migrant flows from poor countries.

The chapter is based on the premise that economic development is more likely to lead to more immigration from poor countries, at least in the short to medium term, since development provides the needed resources to facilitate migration at the initial stages. The study therefore tests the hypothesis that there an inverse U-shaped relationship between economic development and migrant flows from poor countries, i.e. emigration initially rises with economic development up to a certain development threshold after which further economic development leads to less emigration.

The analysis in the chapter confirms that, to a large extent, the hypothesis holds but is sensitive to aggregations of countries. It may therefore be concluded that, while the analyses confirm a non-linear relationship between economic development and migrant inflows from poor countries to the UK, it reveals that there is some heterogeneity in the relationship across different country groupings.

Economic versus Cultural Determinants of Attitudes towards Immigration

3.1 Introduction

The role of non-economic determinants of individual attitudes towards immigration has always been acknowledged as important in the economic literature though usually perceived as less traceable and treated as supplementary (ancillary) rather than a main determinant of individual attitudes towards immigration. However, only a few studies (Card, Dustman and Preston, 2005b; Dustmann and Preston, 2007) have systematically examined, empirically, the role of non-economic considerations in shaping attitudes towards immigration. Evidence of any comparative analysis of the strength of economic versus non-economic determinants of individual attitudes towards immigration is scarce. This chapter takes a step at filling this gap in the literature by empirically exploring how individual assessments of economic and cultural effects of immigrants shape their immigration policy preferences. This provides the opportunity to directly compare the importance of economic and non-economic determinants of individual attitudes towards immigration.

According to Zimmermann and Constant (2008), the EU recognizes that culture and diversity are vital elements to its member economies and competitiveness and its international relations with third countries. Studies by Ottaviano and Peri (2006) for the US and Bellini, Ottaviano, Pinelli and Prarolo (2008) for the EU also find that cultural diversity is positively correlated with productivity. They provide evidence that causation runs from the former to the latter. While cultural diversity is mainly enhanced by immigrants (of various ethnicities and races), religious minorities, stateless people, etc; the economic literature on the effects of immigration as well as the literature on attitudes towards immigration views cultural effects of immigrants

as non-economic. Studies on the economic impacts of immigrants typically look at the labour market and welfare state effects of immigrants.

Irrespective of the effects of immigrants on the economy, be it through cultural diversity, labour market or welfare state, the immigration policies in modern democratic societies are, to a large extent, outcomes of citizens' attitudes towards immigrants and immigration (Rodrik 1995). These individual attitudes are, in turn, shaped by how the individual perceives the effects of immigrants on their personal, social and economic welfare. Thus, individual attitudes towards immigration are deeply rooted in the self-interest hypothesis. Although the economic literature on individual attitudes towards immigration recognises the importance of non-economic determinants (such as culture), the focus is generally on economic concerns. The role of cultural diversity, racism and ethnicity are often treated as secondary, often without systematic analysis. This is in spite of the fact that Card, Dustman and Preston (2005b) find cultural concerns to be more important than economic concerns. This chapter therefore aims to provide more systematic empirical analyses aimed at comparing the relative importance of economic and cultural concerns in shaping individual attitudes towards immigration.

The main research questions in the chapter are: (i) To what extent are economic concerns more important than cultural concerns in determining individual attitudes towards immigration? (ii) Do ethnic and racial preferences alter the extent to which economic concerns differ from cultural concerns in individual attitudes towards immigration? The primary hypothesis that is tested to answer the research questions is as follows:

Individual subjective assessments of the economic impacts of immigrants are more important than their subjective assessment of the cultural impacts of immigrants in shaping their attitudes towards immigration, irrespective of ethnic or racial preferences.

This hypothesis is tested using data from the European Social Survey (2008/09 edition) and employing the trivariate probit model for the empirical analyses.

3.2   Literature Review

In Europe and in the United States the policy debate on immigration focuses mainly on who should be allowed to come and how many. The debates typically have two distinct dimensions - economic and non-economic. The economic concerns are normally related to consequences of immigration on the labour markets (such

as unemployment level, wage level, skill shortage issues etc), welfare state and public finance outcomes. The non-economic issues relate to cultural alienation (cultural threat/cultural identity), fear that immigrants will undermine the traditions, language, religion, political power, or general way of life of the native population. Other non-economic factors also include beliefs about civil rights (non-discrimination and free movement of persons), terrorism, international responsibility and altruism.

The aim of this chapter is to compare the impacts of these concerns, particularly economic and cultural concerns, on individual attitudes towards immigration. The chapter is therefore related to two strands of literature. First, the chapter is related to the literature on the effects of immigration on the host country and its citizens. Second, and more specifically, the study is related to the growing literature that looks at the determinants of individual attitudes towards immigration.

With regard to the literature on the consequences of immigration in the host country, the studies in economics primarily focus on labour market impacts; welfare state impacts and cultural impacts (to lesser extent) of immigration. There is a large body of both theoretical and empirical literature that study the economic impacts of immigration (Borjas 1994, 1995, 1999, 2003; Boeri, Hansen and McCormick, 2002; Card 1990, 2001, 2005; Card and Di Nardo, 2000). A particularly strong focus has been on the effect of immigration on labour market outcomes (employment and wage levels). These studies typically treat labour markets for different skills as segmented, and focus on the consequences of wages for different skill-groups in the short and medium run. Even though a consensus has not been achieved on the general impact of immigrants on wages, reviews of recent evidence (Borjas, 2003) conclude that there is a small macroeconomic benefit of immigration, but that this is accompanied by adverse impacts on the employment and wage levels of competing (skill-group) native workers. This is because immigration changes the relative supply of workers of different skill groups.

There is also a growing body of literature that focuses on the welfare state effects of immigrants. This branch of the literature is interested in the impacts of immigrants on taxes, transfer payments, social security and other state provisions. Some of the questions explored in this literature include: Do immigrants take into account the generosity of the welfare state system when choosing a host country? Do immigrants put a strain on the financing of the welfare state? Do different types (skilled/unskilled) of immigrants have different impacts on the welfare state? The general argument is that, the very existence of redistributive social insurance programmes in the main migrant-receiving countries is likely to have a magnetic effect on some unskilled immigrants. These unskilled immigrants may not only be interested in the new job opportunities but also in other benefits that come in the form of subsidised healthcare,

unemployment compensation or provisions concerning dependents. The consensus is that unskilled immigrants are likely to represent a net burden on the public finances in the host countries even though in general migration can have the opposite effect on the welfare state, for example, when migrants are skilled (Benhabib, 1996; Boeri, Hanson and McCormick, 2002; Borjas and Hilton, 1996; Facchini and Mayda, 2009a; Krieger, 2005; Ortega 2005).

In addition to labour market and welfare state impacts, there is also a small but growing literature in economics that is interested in the cultural consequences of immigration (Ottaviano and Peri, 2005, 2006). On the one hand, greater cultural distance between immigrants and native populations in Europe arguably makes the ideal of national solidarity based on shared values harder to achieve. Immigrants, who in many cases are of different racial and ethnic groups, with different religions, languages or culture may be perceived as undermining existing institutions and threatening the way of life and social status of current residents (Blalock, 1967; Quillian, 1995). On the other hand, cultural diversity has been considered by economists as valuable both in consumption and production. For instance, Jacobs (1969) attributes the prosperity of cities to their industrial diversity. Quigley (1998) and Glaeser, Kolko and Saiz (2001) identify the diversity of available consumption goods and services as one of the attractive features of cities. Fujita, Krugman and Venables (2001) use the 'love of variety' in preferences and technology as the building block of their theory of spatial development; the production of a larger variety of goods and services in a particular location increases the productivity and utility of people living in that location.

Irrespective of the overall consequences of immigration on the host country's labour market, welfare state and cultural life, the resulting immigration policies are largely an outcome of individual attitudes towards immigration (Rodrik, 1995). This chapter is more closely related to the substantial body of literature that studies the determinants of individual attitudes towards immigration. This literature looks at the effect of both economic and non economic factors on attitudes towards immigration. The overall message from these studies is that, whereas non-economic drivers have an important and independent effect on individual preferences, economic characteristics of the respondents are shown to systematically shape attitudes towards immigration (Facchini and Mayda, 2009a).

The early contributions have mainly focused on individual countries like the United States (Citrin et al., 1997; Espenshade and Hempstead, 1996; Kessler, 2001; Scheve and Slaughter, 2001) and the United Kingdom (Dustmann and Preston, 2001; 2004; 2007). More recently, cross country studies have taken advantage of newly available social surveys, which cover large samples of both advanced and developing countries

(Chiswick and Hatton, 2003; Mayda, 2006; O'Rourke and Sinnott, 2006; Facchini and Mayda, 2007; 2009b) and allow richer studies.

Mayda (2006) uses the 1995 round of the International Social Survey Panel and the 1995-1997 round of the World Value survey to analyses the economic and non-economic determinants of individual attitudes towards immigrants within and across countries. She finds that labour market concerns, security and cultural considerations as well as individual feelings towards political refugees and illegal immigration are all significant determinants of individual attitudes towards immigrants. She considers two main factors under non-economic factors - the impact of immigrants on crime rates and individual perceptions of the cultural effect of immigrants. Given that her primary focus was on economic determinants, she shows that the non-economic determinants do not significantly alter the results regarding economic variables and concludes that labour market explanations of attitudes towards immigrants survive after taking into account the non-economic factors. Her conclusions are similar to O'Rourke and Sinnott (2006) who also used the same dataset.

Card, Dustman and Preston (2005b) and Dustmann and Preston (2007) are however the two studies that are most related to the focus of this chapter. Using data from the British Social Attitudes Survey, 1983-1991, Dustmann and Preston (2007) examines "Racial and Economic Factors in Attitudes to Immigration". They compare racial motives with economic considerations relating to individual attitudes immigration. They conclude that racial issues are considerably more important than economic concerns in driving attitudes, particularly so amongst less educated and lower skilled sections of the population.

Card, Dustman and Preston (2005b), however, considers a cross-country approach and using data from the first round (2002) of the European Social Survey they employ a combination of factor analysis, independent ordered probit and bivariate probit methods to compare the effects labour market, welfare state and cultural considerations on individual attitudes towards immigration. They conclude that economic concerns matter less than cultural protectionism in shaping attitudes towards immigration. The analysis in this chapter differs from Card, Dustman and Preston (2005b). The present analysis relies on data from the latest round (2008) of the European Social Survey, and employs trivariate probit methods with the primary aim of systematically comparing the effects of economic and cultural concerns in shaping attitudes towards immigration.

3.3 Data and Method

This chapter mainly uses the dataset from the fourth wave of the European Social Suvery (ESS4), 2008/2009, to test the hypothesis that economic concerns are more important than cultural concerns in shaping individual immigration policy preferences.

The European Social Survey (the ESS) is a biennial multi-country survey, which started in 2002/2003, covering over 30 nations. It is an academically-driven social survey designed to chart and explain the interaction between Europe's changing institutions and the attitudes, beliefs and behaviour patterns of its diverse populations. The ESS employs random (probability) sampling methods with comparable estimates based on full coverage of the eligible residential populations aged 15 or older who are resident within private households, regardless of nationality and citizenship or language. The broad national coverage provides cross-national variation in social, political and economic contexts. In each round the questionnaire consists of a "core" module that contains a large range of socioeconomic and demographic questions and several rotating, topic-specific modules, one of which focuses on the issue of immigration.

The data used for the analysis in this chapter come from the third edition of the ESS4 data release which covers twenty-eight countries and consists of up to 54,988 observations (respondents) with the average country sample being around 1900 respondents. The countries are: Belgium, Bulgaria, Switzerland, Cyprus, Germany, Denmark, Estonia, Span, Finland, France, UK, Hungary, Israel, Netherlands, Norway, Poland, Portugal, Russian Federation, Sweden, Slovenia, Slovakia Croatia, Czech Republic, Greece, Latvia, Romania, Turkey and Ukraine. Germany (5.00%) has the largest proportion of the total unweighted sample size followed by Spain (4.68%) and Russia (4.57%), while Cyprus (2.21%) has the smallest proportion of the total sample (although when the appropriate weights are applied Russia has the largest proportion of the weighted sample). The econometric analyses are however carried out on the weighted samples. The data comprise of design weights and population weights that correct for the slight differences in the probabilities of selection within a country and also the differences in population sizes across countries.

3.3.1 Outline of Relevant Survey Questions

The main dependent variables for the empirical analysis carried out in this chapter are taken from three versions of the survey question which required respondents to provide, on a four-point scale ("many", "some", "few" or "none"), how many immigrants should ideally be permitted to enter their country. The questions are:

To what extent do you think [country] should allow people of the same race or ethnic group as most [country's] people to come and live here?

To what extent do you think [country] should allow people of a different race or ethnic group as most [country's] people to come and live here?

To what extent do you think [country] should allow people from the poorer countries outside Europe to come and live here?

The available options of answers to these questions are: (a) allow many, (b) allow some, (c) allow few, (d) allow none, and (e) don't know. The last option ("don't know) is treated as missing and dropped from the analysis. The resulting categorical variables from the survey questions above are named $IMPP1$, $IMPP2$ and $IMPP3$ respectively (i.e. immigration policy preference 1, 2 and 3). Unlike similar questions in other cross-country surveys (such as the International Social Survey Programme-ISSP), that typically ask how respondents will alter existing immigration policies (i.e. whether they would prefer to relax or tighten immigration policy in their country), the answers to the questions above are expected to be less biased by the individual's judgement of the current immigration policy and the current number of immigrants living in their country. Note also that the word "immigrants" is not mentioned in the questions above since it may have different connotations in different European countries. Instead the phrase "people from abroadĚ.to come and live in [country]" is used. This framing leaves open the issue of whether immigrants are permanent or temporary. The variation in the questions (pertaining to the race/ ethnicity and general skill level) also allows the views of the relative desirability of the potential immigrants to be captured and analysed.

The three variables ($IMPP1$, $IMPP2$ and $IMPP3$) capture the individual's immigration policy preferences which could be regarded as indicators of the latent individual attitudes towards immigration and hence are the main dependent variables in this study. The purpose of this study is, therefore, to estimate the independent effects of the individual's economic and cultural concerns on their attitudes towards immigration as observed by their immigration policy preferences.

To measure the substance of the individual's economic concerns regarding immigration, this study relies on respondents' answers to the following question:

Would you say that it is generally bad or good for [country]'s economy that people come to live here from other countries?

The responses to this question are recorded on a scale of 0 to 10, where 0 indicates

the individual's subjective view that immigrants are bad for the economy and 10 implies immigrants are good for the economy. This subjective individual assessment of the effect of immigrants on their country's economy could be seen as capturing the individual's economic self-interest regarding immigrants and immigration. Thus, a rational utility maximising individual, assuming they are well informed, and have no other preconceptions will be expected to choose to "allow many" immigrants if they believe that immigrants are good for their economic outcomes (wages, taxes etc). The variable resulting from these subjective assessments of the economic effects of immigrants is named *pro − immigration − economy*: the first explanatory variable of interest in this study.

Similarly, the second explanatory variable of interest, *pro-immigration-culture*, comes from respondents' answers to the following question:

Would you say that [country]'s cultural life is generally undermined or enriched by people coming to live here from other countries?

The responses are also recorded on a scale of 0 to 10, where 0 implies a subjective assessment that immigrants undermine cultural life in the country and 10 means immigrants enrich the cultural life in the country.

Thus, all things being equal, individuals' immigration policy preferences (given by *IMPP1*, *IMPP2* and *IMPP3*) are functions of their views on the economic and cultural effects of immigrants (*pro-immigration-economic* and *pro-immigration-culture*). In addition to these main variables of interest other independent variables and controls relating to the individual characteristics, personal attributes as well as relevant socio-economic background information are available from the dataset. These are detailed in the descriptive statistics in subsection 3.3.3.

3.3.2 Empirical Model and Estimation Method

The aim of the empirical analyses in this chapter is to evaluate and compare the effects of economic and cultural concerns on the latent individual attitudes towards immigration. This is based on estimating the effects of subjective individual assessments of the economic and cultural impact of immigrants on observed individual immigration policy preferences, where the potential immigration are of the same race or ethnicity; of a different race or ethnicity; and from poor countries outside Europe. This requires estimating the effects of *pro-immigration-economic* and *pro-immigration-culture* on each of the dependent variables (*IMPP1*, *IMPP2* and *IMPP3*) while controlling for indivi-

dual socio-economic backgrounds.

The canonical empirical method, given that all three dependent variables contain ordinal responses, is the ordered probit model. This method would comprise simply of a series of three independent ordered probit regressions (for $IMPP1$, $IMPP2$ and $IMPP3$) with both *pro-immigration-economic* and *pro-immigration-culture* as determinants along with the controls. However, due to possible endogeneity bias, the ordered probit method may not be appropriate for the analysis in this chapter.

Edogeneity bias may be a problem because of any or all of the following three reasons. Firstly, the causal relation between each of the two explanatory variables (*pro-immigration-economic* and *pro-immigration-culture*) and each of the dependent variables ($IMPP1$, $IMPP2$ and $IMPP3$) may not be unidirectional. Thus while one would expect the high correlation between individual preferences and their economic or cultural concerns, one cannot expect causality to always run from the later to the former. Hence the analyses need to control for possible dual causality. Secondly, the two explanatory variables of interest may, just as well as the dependent variables, be influenced by the socio-economic background variables (such as ages, education level etc) used as controls. Thus, the main variables ($IMPP1$, $IMPP2$ and $IMPP3$ as well as *pro-immigration-economic* and *pro-immigration-culture*) may all be jointly determined by similar observed variables[1]. Thirdly, the variables may all depend on correlated unobserved factors.

The nature of the possible endogeneity problem suggests the use of simultaneous equation techniques (Freedman and Sekhon, 2010). Theoretically, this means that a recursive trivariate ordered probit model needs to be estimated. However, according to Greene and Hensher (2009) the bivariate ordered probit model is more or less the dimensional limit of the applications of the multivariate ordered probit model due to practical reasons. Hence the trivariate probit model seems to be the next practical option available in the class of discrete choice models. The trivariate probit model is a generalisation of the univariate probit model that allows the estimation of three dichotomous dependent variables simultaneously. This method explicitly models the correlation in the disturbance term (unobserved factors). In the case of the analysis in this chapter, two of the three dependent dichotomous variables in the trivariate probit model are endogenously determined.

The trivariate probit model used to estimate the influence of economic and cultural concerns on individual attitudes towards immigration is therefore given by:

---

[1]Thus there may be a case of possible multicollinearity bias

$$
\begin{array}{lll}
y_1^* &= \alpha y_1^* + \gamma y_3^* + \beta_1 \acute{x}_1 + \varepsilon_1 & \textit{where } y_1 = 1 \textit{ if } y_1^* > 0,\ 0 \textit{ otherwise} \\
y_2^* &= \beta_2 \acute{x}_2 + \varepsilon_2 & \textit{where } y_2 = 1 \textit{ if } y_2^* > 0,\ 0 \textit{ otherwise} \qquad (3.1) \\
y_3^* &= \beta_3 \acute{x}_3 + \varepsilon_3 & \textit{where } y_3 = 1 \textit{ if } y_3^* > 0,\ 0 \textit{ otherwise}
\end{array}
$$

Where y_1^*, y_2^* and y_3^* represent the latent attitudes towards immigration, concerns about the economic effects of immigrant and concerns about the cultural effects of immigrants respectively. The observed dichotomous indicators for these are given by y_1, y_2 and y_3 while $\acute{x}_1$, $\acute{x}_2$ and $\acute{x}_3$ represent the vectors of observed determinants which may be the same across the three equations. The error terms (ε_1, ε_2 and ε_3) are assumed to be multivatriate normal and jointly correlated. In the case of the multivariate probit model the correlated disturbances are represented by:

$$
\begin{array}{ll}
Cov[\varepsilon_1, \varepsilon_2] = & \rho_{21} \\
Cov[\varepsilon_1, \varepsilon_3] = & \rho_{31} \qquad\qquad (3.2) \\
Cov[\varepsilon_2, \varepsilon_3] = & \rho_{32}
\end{array}
$$

The unknown parameters α and γ represent coefficients of *pro-immigration-economic* and *pro-immigration-culture*, while β_1, β_2 and β_3 are the coefficients of the demographic and socio-economic controls. The three correlation coefficients ($\rho_{21}, \rho_{31}, \rho_{32}$) along with the other unknown parameters are estimated using the trivariate probit regressions[2]. This empirical strategy has the advantage of allowing the individual immigration policy preferences to be estimated jointly and simultaneously with *pro-immigration-economic* and *pro-immigration-culture*. The recursive trivariate probit estimation also controls for dual causality and takes into account the likely correlation between the errors' terms. The method applies the Geweke-Hajivassiliou-Keane (GHK) smooth recursive conditioning simulator to evaluate the multivariate normal distribution. Capellari and Jenkins (2003) state that the simulated probabilities are unbiased, and they bound the correlation coefficients ($\rho_{21}, \rho_{31}, \rho_{32}$) within the (0,1) interval. They argue that the GHK simulator is also more efficient (in terms of the variance of the estimators of probabilities) than other simulators and is a continuous and differentiable function of the model's parameters. Hajivassiliou, McFadden and Ruud (1996) also found the GHK simulator to generally outperform other simulators.

Although the estimation technique allows the vectors $\acute{x}_1$, $\acute{x}_2$ and $\acute{x}_3$ to contain the same variables, some control variables are excluded in the vectors. This is expected to improve identification in the model. Thus, some variables in $\acute{x}_2$ are excluded

---

[2]This is implemented by the multivariate probit application 'mvprobit' for Stata version 10.1 (Stata Corporation, TX, USA) that uses Geweke-Hajivassiliou-Keane (GHK) simulator developed by Cappallari and Jenkins, 2003

in x'_1 and x'_3 while some variables in x'_3 are excluded in x'_1 and x'_2. The additional control variables that may also serve as exclusion restrictions are described in the next subsection.

It should however be noted that the multivariate probit model does not require any instruments or exclusion restrictions for identification. Wilde (2000) demonstrates that no additional restrictions on the parameters are needed to achieve the identification of the multivariate probit model with an endogenous dummy regressor. Identification requires only the existence of one varying exogenous regressor. This is in spite of the fact that Maddala (1983, p. 122) agues that, for the two equation probit model, the parameters of the second equation are not identified if there are no exclusion restrictions on the exogenous variables.

The individual immigration policy preference variables ($IMPP1$, $IMPP2$ and $IMPP3$), as well as the covariates, pro-immigration-economic and pro-immigration-culture, are re-coded to reflect the dichotomous nature of y_1, y_2 and y_3. The individual immigration policy preferences ($IMPP1$, $IMPP2$ and $IMPP3$) are redefined as binary variables where the 1 represents pro-immigration preferences, "allow many" and "allow some", while 0 represents anti-immigration preferences, "allow few" and "allow none". This is presented in the transformation below:

$$IMPP_i = \begin{cases} 1 & Allow\ none \\ 2 & Allow\ few \Rightarrow \begin{cases} 1\ if\ IMPP_i > 2\ (pro-immigration) \\ 0\ if\ IMPP_i \leq 2\ (anti-immigration) \end{cases} \\ 3 & Allow\ some \\ 4 & Allow\ many \end{cases} \quad (3.3)$$

The endogenous dependent variable, *pro-immigration-economic*, is redefined as a binary variable such that all outcomes above 6 on the 0-10 response scale are re-coded as 1, meaning immigrants are good for the economy while all other outcomes, 0-6, are re-coded as 0. This is represented in the transformation below:

$$pro-immig-eco = \begin{cases} 0 & \text{immigrants are bad for the economy} \\ 1 & \\ \vdots & \\ 10 & \text{immigrants are good for the economy} \end{cases}$$

$$\Rightarrow \begin{cases} 1 & if \ pro - immig - eco > 6 \ \text{(immigrants are good for the economy)} \\ 0 & if \ pro - immig - eco \leq 6 \ \text{(immigrants are bad for the economy)} \end{cases} \quad (3.4)$$

On the original scale of 0-10 one would regard outcome 5 as the midpoint, signifying that immigrant are neither good nor bad for the economy. Hence any outcome above 5 may be deemed as indicating that immigrants are good for the economy, while any outcome below 5 represents the believe that immigrants are bad for the economy. However, it could be argued that those who chose outcomes 6 on the 11 point scale are the people who do not necessarily want to send a clear message that they believe immigrants are good for the economy. Therefore, to capture only responses that clearly and strongly indicate beliefs that immigrants are good for the economy I choose only outcomes above 6 to be re-coded as 1 while relegating any uncertainties to 0 (immigrants are bad for the economy).

Similarly, *pro-immigration-culture* is also redefined from a 0-10 categorical variable to a dichotomous variable. All outcomes above 6 are re-coded as 1, meaning immigrants enrich the cultural life in the country. All other outcomes, 0-6, are re-coded as 0, meaning immigrants undermine the cultural life in the country.

$$pro - immig - culture = \begin{cases} 0 & \text{immigrants undermine cultural life} \\ 1 & \\ \vdots & \\ 10 & \text{immigrants enrich cultural life} \end{cases}$$

$$\Rightarrow \begin{cases} 1 & if \ pro - immig - culture > 6 \ \text{(immigrants enrich cultural life)} \\ 0 & if \ pro - immig - culture \leq 6 \ \text{(immigrants undermine cultural life)} \end{cases} \quad (3.5)$$

For both *pro-immigration-economic* and *pro-immigration-culture*, additional variables are created with a set of more relaxed definitions named *pro-immigration-economic(1)* and *pro-immigration-culture(1)*. These additional variables, which are used in the robustness check estimates, are defined such that they take the value of 1 if the original outcome is greater than 5; otherwise they take the value 0. Similarly, a set of stricter variables *pro-immigration-economic(2)* and *pro-immigration-culture(2)* are also defined such that they take the values of 1 if the original outcomes are greater than 7; while every original outcome that is 7 and below is re-coded as 0.

3.3.3 Descriptive Statistics

The analyses in this chapter focus on three main dependent variables - $IMPP1$, $IMPP2$ and $IMPP3$ - represented by in the above trivariate model and the two endogenous dependent variables, *pro-immigration-economic* and *pro-immigration-culture* represented by y_2 and y_3 respectively. Table 3.1 present the sample means and standard deviations for these variables.

The table indicates that the race or ethnicity of the potential immigrants is very important for the individual's attitude towards immigration. It shows that, while 65 percent of 52, 678 respondents are willing to allow immigrants of the same race or ethnicity as them to come and live in their country, only 48 percent of 52, 439 respondents are willing to allow immigrants of a different race or ethnicity to come and live in their country. This suggests that attitudes are more unfavourable if there is a large racial distance between potential immigrants and natives. The attitudes are even more hostile if the potential immigrants are from poor counties outside Europe - only 45 percent of 52, 055 respondents would allow immigrants from poor countries outside Europe to come and live in their country. This general opposition for immigration from poor countries outside Europe is mostly likely due to the perception that those immigrants are predominantly of low skills (Hainmueller and Hiscox, 2007), in addition to being of different cultural backgrounds.

More generally, the distribution shows that while the preferences for immigrants of the same race or ethnicity are above the average (0.50), preferences for immigrants of different race or ethnicity and immigrants from poor countries outside Europe are below average. However, there are significant differences in these attitudes across countries as indicated by the standard deviations. The cross countries differences are larger for $IMPP2$ and $IMPP3$ both with a standard deviation of 0.50.

Table 3.1: Descriptive Statistics for Dependent and Endogenous Dependent Variables

Main Dependent Variables	Observations	Mean	Std. Dev
Preferences for Immigrants of the Same Race or Ethnicity (IMPP1)	52,678	0.65	0.48
Preferences for Immigrants of a Different Race or Ethnicity (IMPP2)	52,439	0.48	0.5
Preferences for Immigrants from Poor Countries Outside Europe (IMPP3)	52,055	0.45	0.5
Endogenous Dependent Variables			
Pro-immigration-economic	51,762	0.26	0.44
Pro-immigration-culture	51,801	0.37	0.48
Endogenous Dependent Variables (Alternative definitions)			
Pro-immigration-economic(1)	51,762	0.37	0.48
Pro-immigration-culture(1)	51,801	0.47	0.5
Pro-immigration-economic(2)	51,762	0.15	0.35
Pro-immigration-culture(2)	51,801	0.23	0.42

Figure 3.1 highlights the cross country differences in $IMPP1$, $IMPP2$ and $IMPP3$ but also the differences within each country between the three variables. For instance, the figure shows that nearly all the respondents (91 percent) in Sweden have a preference for immigrants of the same race or ethnicity while the proportion is only 37 percent in Turkey. With regards to immigrants of a different race or ethnicity, Sweden leads again with 87 percent of the Swedish respondents in favour while only 12 percent of the respondents from Cyprus are in favour. Similarly, most Swedish respondents (87 percent) are in favour of immigration from poor countries outside Europe while Cyprus has the lowest proportion of respondents (9 percent) in favour of immigration from poor countries outside Europe. Thus the Swedish population are, on average, more pro-immigration than all the other countries irrespective of the race or origin of the potential immigrants. Among all the countries in the dataset, the Cypriot population (made up mainly of Greek and Turkish Cypriots) discriminates most between the three type immigrants. For instance, while 80 percent of the Cypriot respondents are in favour of having immigrants of the same race or ethnicity, only 12 percent of them are in favour of having immigrants of a different race or ethnicity.

The Spanish population seems to exhibit the least racial discrimination in their immigration policy preferences. In fact, the proportion of Spanish respondents that are in favour of having immigrants from a different race or ethnicity (43 percent) is slightly higher than the proportion that prefers immigrants of the same race (42 percent). In Sweden, Belgium and Israel the mean $IMPP2$ is equal to the mean $IMPP3$. However, in Poland, Slovakia and Turkey the proportion of respondents that prefer immigrants from poor countries outside Europe exceeds the proportions that prefer to have immigrants of a different race (i.e. the mean IMPP3 is greater than the mean $IMPP2$ in these countries).

Table 3.1 also indicates that, in general, individual perceptions about the effects of immigrants on the economy and on the cultural life are mostly negative. The table shows that about 74 percent of the respondents believe that immigrants are bad for their economy while 63 percent believe that immigrants undermine the cultural life in their country. Nevertheless there are more optimistic views on the cultural effects of immigrants (37 percent) than there are on the economic effects of immigrants (26 percent). The patterns in these distributions for pro-immigration-economic and pro-immigration-culture do not change when the definitions are relaxed or tightened further for pro-immigration-economic(1) and pro-immigration-culture(1) on the one hand and pro-immigration-economic(2) and pro-immigration-culture(2) on other. Thus, the general perceptions are still mostly negative for cultural effects and economic effects with the optimistic views greater for cultural than economic effects.

These views however differ considerably across countries according to the standard

Figure 3.1: Proportions of Individual Immigration Preferences by Country

Country	Same race/ethnicity	Different race/ethnicity	Poor countries outside Europe
SE	91	87	87
CH	84	64	59
DK	82	56	46
NO	82	64	63
DE	80	62	60
PL	80	72	73
CY	80	12	9
BG	76	65	55
BE	75	59	59
UA	74	51	44
IL	73	34	34
SI	70	60	53
NL	69	64	57
FR	67	55	50
HR	67	62	57
RU	66	38	35
FI	65	46	38
HU	63	20	15
SK	62	51	54
GB	61	51	47
EE	60	40	29
RO	58	50	48
LV	55	37	25
CZ	46	36	34
ES	42	43	42
PT	42	39	38
GR	39	16	15
TR	37	30	32

Proportion of Respondents in Favour of Immigration

■ Preferences for immigrants of the same race or ethnicity
■ Preferences for immigrants of a different race or ethnicity
□ Preferences for immigrants from poor countries outside Europe

deviations of +/- 0.44 for *pro-immigration-economic* and +/- 0.48 for *pro-immigration-culture*. For instance, even though the overall sample mean is only 37 percent for *pro-immigration-culture*, as high as 74 percent of the respondents in Finland believe that immigrants enrich the cultural life in the country. On the hand, as low as 11 percent of the respondents in Greece believe that immigrants enrich the cultural life in their country. The cross country variations (captured by figure 3.2) in *pro-immigration-economic* are not as high as they are in *pro-immigration-culture* even though the individual country means differ considerably from the overall sample mean. Switzerland has the largest proportion of respondents (50 percent) who believe that immigrants are good for the economy while Greece has the smallest proportion of respondents (12 percent) who believe that immigrants are good for the economy.

Figure 3.2 also confirms that the views on cultural effects are more optimistic than the views on economic effects of immigrants, even for the individual country samples. For instance, while Finland leads with a clear 74 percent for *pro-immigration-culture*, Switzerland's leads for *pro-immigration-economic* is not clear cut with 50 percent. In addition, for all the countries (except Cyprus, Russia and Greece) the mean *pro-immigration-culture* exceeds the mean *pro-immigration-economic*. These descriptive statistics suggests that the high racial and ethnic discrimination in Cyprus and Greece (as indicated by *IMPP1* and *IMPP2*) may be due to the fact that most Cypriots and Greeks believe that immigrants undermine the cultural life in their country.

The empirical model adopted for the analysis means that the individual's economic and cultural concerns about the effects of immigrants together with the resulting individual immigration policy preferences are jointly determined, simultaneously, by the individual's demographic and socio-economic background factors as well as other personal characteristics or attributes. Table 3.2 presents summary statistics for all the independent control variables considered for the analysis in this chapter.

Controls for the individual's *age, education level, citizenship*, gender (*female*) and ethnicity (*ethnic minority*), are included in the benchmark model as standard. Table 3.2 shows that with a mean of 48 years, most of the respondents are aged between 29 and 67 years. The age distribution in each of the individual country samples does not differ too much from this overall age distribution. The *age* and *education level* distributions by country are provided in Table A3.2 in the appendix. The *education level* is a categorical variable with 0 to 6 categories respectively representing: not completed high school; completed primary or basic; completed lower secondary; completed upper secondary; completed post-secondary, non-tertiary; completed tertiary and completed second stage tertiary. The summary statistics indicate that the average respondent in the full sample has completed the upper secondary (3) education level. With the exception of Portugal and Turkey (where the average respondent has a lower level of education)

Figure 3.2: Proportions of Individuals with Pro-immigration Economic and Cultural attitudes by Country

Country	Pro-immigration Economic	Pro-immigration Culture
FI	34	74
SE	34	65
CH	50	53
PL	35	53
NL	29	51
DK	34	49
DE	31	48
NO	40	46
BE	23	44
IL	36	43
ES	30	40
RO	36	38
FR	23	37
PT	29	36
BG	32	35
EE	17	33
HR	19	31
GB	23	30
SI	21	29
HU	10	28
SK	16	28
LV	18	24
UA	22	23
TR	17	20
CZ	16	19
CY	26	17
RU	16	13
GR	12	11

Sample Proportions

☐ Pro-immigration Economic ■ Pro-immigration Culture
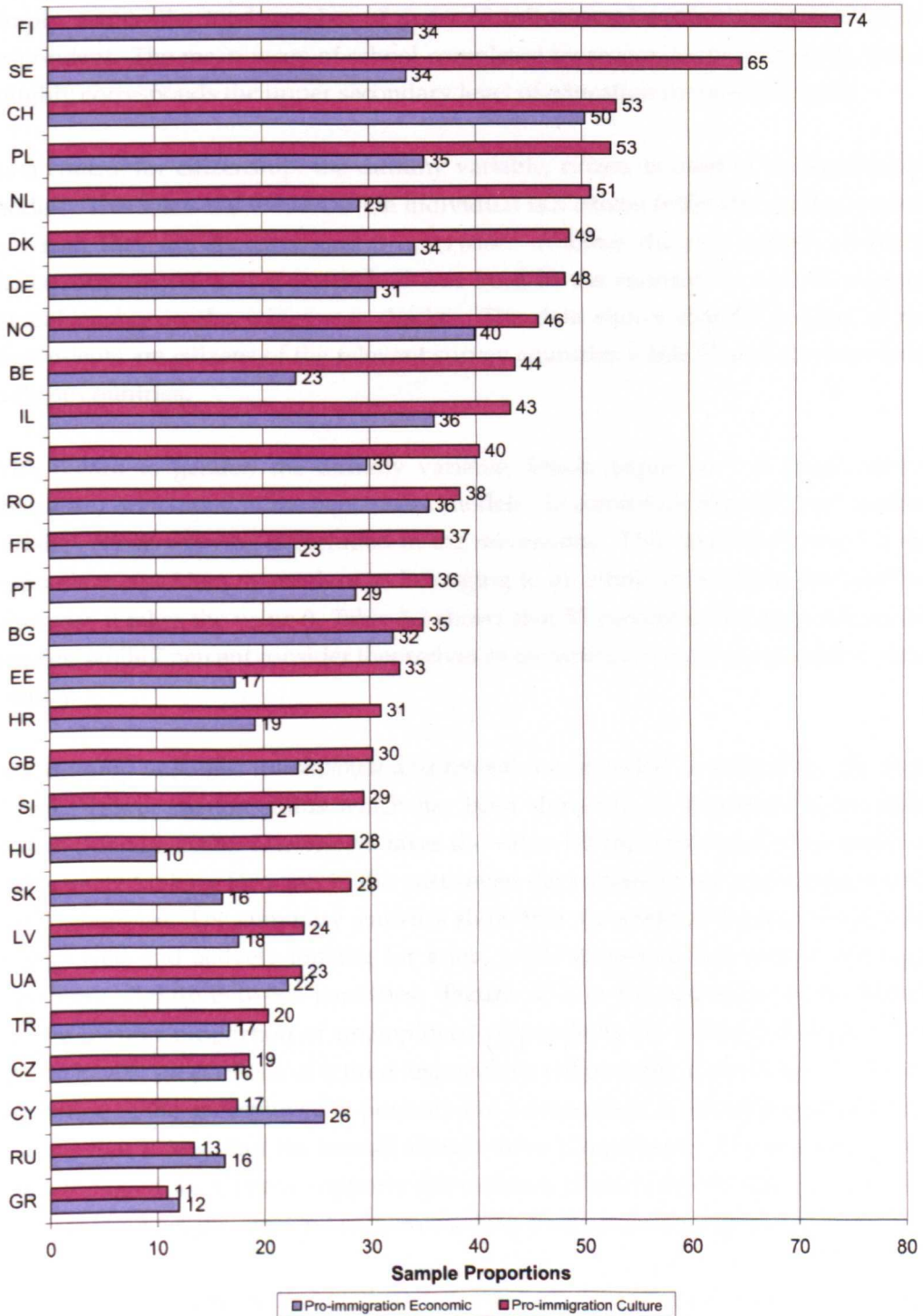
the respondent education level distributions are similar across all the countries. As an alternate measure of the respondent's education level, the *years of schooling* is used in place of education level for robustness check. This is a continuous variable that simply counts the total number of years of full-time education completed by the respondent. The mean years of school completed by respondents is 12 years, which roughly corresponds the upper secondary level of education in most countries.

As a control for citizenship, the dummy variable, *citizen*, is used in the benchmark models. This takes the value 1 if the individual is a citizen (officially) of the country in which they are surveyed and 0 otherwise. Another dummy variable, born in the country, (equal to 1 if individual was born in the country) is used as a proxy for citizenship in the robustness checks. The data shows that 97 percent of the respondents are citizens of the relevant survey countries while 91 percent were born in those countries.

With regard to gender, the dummy variable, *female*, (equal to 1 if female and 0 otherwise) is included in the benchmark models. To control for ethnicity, the dummy variable, *ethnic minority*, is included in the regressions. This takes the value 1 if the respondent considers themselves as belonging to an ethnic minority in the country; otherwise it takes the value 0. Table 3.2 shows that 55 percent of the respondents are females, while 7 percent consider themselves as members of an ethnic minority in their country.

Two dummy variables (*unemployed* and *retired*) are included to control for the individual's labour market status which has been shown to be important in previous studies (Mayda, 2006). *Unemployed* takes the value 1 if the individual is unemployed and actively looking for a job in the past seven days (before they were interviewed) and 0 otherwise. The summary statistics show that 4 percent of the respondents are unemployed and actively looking for a job, while 26 percent are retired, although these vary slightly between countries. Figure A3.1 in the appendix shows Turkey has the highest proportion of unemployed respondents (11 percent) though it also has the lowest proportions of retired respondents (10 percent). Cyprus has the lowest proportion of the unemployed (1 percent) and a proportion of retired respondents (17 percent) that is less than the overall sample mean (26 percent). The low proportion of unemployed for Cyprus supports the statistics (shown above) that indicate that Cypriots are more *pro-immigration-economic* than they are *pro-immigration-culture*.

The *household income* is included as a measure of social class differences. The *household income* variable is coded 1-10, where 1 represents households with income corresponding to that held by 10 percent of households with lowest income (0-10%); and 10 represent household with income corresponding to that held by top 10 percent

of households. The *household income* variable (with a mean of 5.29) is expected to be highly correlated with the education level (skills) variable hence the inclusion of both variables might raise some issues of multicollinearity. As a result household income is not included in the benchmark models but in extended models for robustness.

To control for the effect of the political views of individuals, the variable *Right-wing Political* inclination is also included in the regressions. This variable is measured on a scale of 0 to 10; where 0 is equal to a self-reported left-wing political inclination and 10 is equal to a self-reported right-wing political inclination. This is envisaged to take care of any bias in the individual's opinions and preferences that may be a result of their political affinities or ideologies. Table 3.2 shows that, in general, the majority of people are neither wholly left or right, politically (mean of 5.20).

Table 3.2: Descriptive Statistics for Joint Independent Variables

Independent Variables	Observations	Mean	Std. Dev	Min	Max
Age	54,791	47.53	18.52	15	123
Age-squared	54,791	2602.55	1846.75	225	15129
Education Level	54,841	3.00	1.42	0	6
Years of Schooling	54,478	11.87	4.16	0	48
Citizen	54,943	0.97	0.18	0	1
Born in the Country	54,867	0.91	0.28	0	1
Female	54,958	0.55	0.50	0	1
Ethnic Minority	53,843	0.07	0.25	0	1
Unemployed	54,988	0.04	0.20	0	1
Retired	54,988	0.26	0.44	0	1
Household Income	39,563	5.29	2.79	1	10
Right-wing Political Inclination	45,948	5.20	2.30	0	10
Worked Abroad	46,991	0.05	0.23	0	1
Big City	54,721	0.27	0.44	0	1
Current Immigration level: Subjective Estimate	44,486	3.79	2.58	1	11

The nature of personal contacts one has with immigrants can influence not only the individual's immigration policy preferences but also their assessment of the cultural and economic impacts of immigrants in their country (Allport, 1979). He distinguishes between "true acquaintance" (e.g. being entertained as a dinner guest in an immigrant's home) and superficial or "casual contact" (e.g. passing an immigrant on the street). While the first type of contact is likely to decrease prejudice towards the immigrant, the second seems more likely to increase it. To measure and control for

the effects of personal contacts with immigrants, the dummy variable *worked abroad* (which is equal to 1 if the individual has ever worked abroad for more than six months; otherwise 0) is used. Additionally, the dummy variable *big city* is used which take the value 1 if the individual lives in a big city and 0 otherwise. The assumption is that those who live in big cities are more likely to have more "true contact" with immigrants. The summary statistics show that while only 5 percent of the respondents have ever worked abroad for more than six months, 27 percent live in big cities.

The individual's subjective estimate of the current immigrant population in their country (*Current Immigration level*) is also included in the regressions to control for both the individual's disposition towards the existing immigration policy in their country and their perception of the immigrant population in their country. Respondents are asked to provide their subjective estimate of the proportion of people of working age born outside the country. The resulting categorical variable is coded from 1 to 11 (where 1 represents 0-4 percent, 2 is 5-9 percent Ě and 11 represent 50 percent or more). With a mean of 3.79 and a standard deviation of 2.58 it shows that the majority of respondents rate the existing level of immigration in their country between 0 and 29 percent.

Table 3.3: Descriptive Statistics for Exclusion Restrictions

Exclusion Restrictions for Pro-immigration Economic	Observations	Mean	Std. Dev	Min	Max
Economic Satisfaction	53,652	3.81	2.48	0	10
Job Security	52,536	2.84	1.61	1	5
Life Satisfaction	54,521	6.54	2.45	0	10
Exclusion Restrictions for Pro-immigration Culture					
Multicultural	53,224	2.40	1.07	1	6
Traditional	53,379	2.61	1.32	1	6
Religious	54,375	4.86	3.02	0	10

Table 3.3 provides the summary statistics for the additional control variables excluded in model equations. Three variables are chosen that may satisfy the condition of exclusion restriction for the endogenous dependent variable, *pro-immigration-economic*. These are *economic satisfaction, job security* and *life satisfaction*. The *economic satisfaction* is a categorical variable (captured on a scale of 0-10, where 0 indicates extreme dissatisfaction while 10 denotes extreme satisfaction) that measures how satisfied respondents are with the present state of the economy in their respective countries. *Job security* measures the extent to which respondents think they are likely to be unemployed and looking for work in the next 12 months. This is recorded on a scale of 1-5, where 1 is equal to "not at all likely"; 2 is "not very likely"; 3 is "likely"; 4 is

"very likely" and 5 is "no longer working and not looking for work".

It is expected that the level of *economic satisfaction* and *job security* would influence the *pro-immigration-economic* outcomes but will have no direct effect on *pro-immigration-culture* or the individual's immigration policy preferences. Thus, for instance, if an individual is extremely satisfied with the state of the economy then they might be more likely to think that immigrants are good for the economy. Also, if an individual feels they are not at all likely to be unemployed in the next 12 month then they are more likely to have an optimistic view about the effects of immigrants on the economy. However, all things being equal, this should not influence their view on the cultural effects of immigrants.

The *life satisfaction* variable (measured on a scale of 0-10, where 0 is extremely dissatisfied and 10 is extremely satisfied) captures the extent to which the respondent is satisfied with life as a whole. This is expected to influence individual's views on both the economic and cultural effects of immigrants but not directly their immigration policy preferences. Table 3.3 shows that while mean *economic satisfaction* is only 3.81, the mean *life satisfaction* is 6.54 indicating that generally respondent are less satisfied about the sate of the economy than they are about life as a whole. This suggests that respondents' satisfaction with the economy does not necessarily overshadow their satisfaction with life as a whole.

Three variables are also chosen that may satisfy the condition of exclusion restriction for *pro-immigration-culture* and hence included in the vector $\acute{x}_3$ but not $\acute{x}_2$ or $\acute{x}_1$. These are *multicultural, traditional* and *religious*; factors that are expected to directly influence cultural concerns regarding the effects of immigrants. The variables *multicultural* and *traditional* come from the supplementary survey questions of ESS4. *Multicultural* measures the extent to which the respondent believes they are like the person who sees difference/diversity positively and as something worth learning about. Respondents are asked: *how much like you is this person, for whom it is important to listen to people who are different from him/her; a person who still wants to understand different people even when he/she disagrees with them?*

Similarly, *traditional* measures the extent to which the individual believes traditions and customs are important to them. They are asked: *How much like you is this person who tries to follow the customs handed down by his/her religion or family?*

Both *multicultural* and *traditional* are categorical variables with outcomes on a scale of 1 to 6 as follows: very much like me (1); like me (2); somewhat like me (3); a little like me (4); not like me (5); Not like me at all (6). One would expect a negative relationship between *multicultural* and *pro-immigration-culture*–indicating that that the

58

more a person believes they are *multicultural*, the more likely they are to think that immigrants enrich the cultural life in their country. On the other hand the more *traditional* an individual is, the less likely they are to think that immigrants enrich the cultural life in their country - hence a positive relationship is expected between traditional and *pro-immigration-culture*. Both *traditional* and *multicultural* are however not expected to influence the individual's view on the effect of immigrants on the economy, all things being equal. The descriptive statistics indicate that, for the overall sample, respondents are skewed towards both *multicultural* and *traditional*. Interestingly, the overall distribution for *traditional* seems to be driven by strong *traditional* samples in a few countries like Cyprus, Greece and Ukraine[3]. Figures A3.2; A3.3; A3.4 and A3.5 in the appendix provides more details.

The final explanatory variable in vector x'_3 that also serves the purpose of an exclusion restriction variable for *pro-immigration-culture, religious*, measures the extent to which the respondent considers themself as religious. This is recorded on scale of 0 to 10, where 0 represents "not at all religious" and 10 represent "very religious". Table 3.3 indicates that the overall distribution is skewed towards "not religious" with a mean of 4.86 and a standard deviation of 3.02.

3.4 Results

This section presents the results and discussions from a series of trivariate probit regressions with the aim of analysing the relative importance of economic and cultural concerns as the main determinants of individual attitudes towards immigration. The regressions estimate the effects of *pro-immigration-economic* and *pro-immigration-culture* on pro-immigration policy preferences in a system of simultaneous equations with correlated errors. In order to provide a more systematic comparison, the relative importance of these determinants is examined separately for three types of immigrants: immigrants of the same race and ethnicity ($IMPP1$); immigrants of different race and ethnicity ($IMPP2$); and immigrants from poor countries outside Europe ($IMPP3$). Results from standard ordered probit models are also presented to compare the result between the three types of immigrants.

Country dummies are included for all countries, except Germany (designated as a comparison group), in all the regressions to control for country-specific effects on individual attitudes towards immigration that are not explicitly accounted for in the model. The coefficients for the country dummies are not provided in the tables due

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[3]And Turkey to a lesser extent.

to lack of space. In addition, robust standard errors are used in all the estimates. The estimates are also weighted by design weights (*dweight*) and population size weights (*pweight*) variables. These are provided with the dataset to correct for slightly different probabilities of selection as well as to correct for the similarities in sample sizes across countries that are not of the same sizes in population. These weights make it possible to generalise the results for the whole population in Europe.

Table 3.4 presents the results from the benchmark models, 1, 2 and 3 representing estimates for *IMPP1*, *IMPP2* and *IMPP3* respectively as the main dependent variables while *pro-immigration-economic* and *pro-immigration-culture* are the main endogenous variable of interest. The first elements to note from the table are the test statistics. Starting with the Wald Test of Overall Significance, which is used as a goodness of fit test, the table shows that all three models are well fitted and the hypotheses that the independent variables are jointly equal to zero are strongly rejected.

The *Likelihood Ratio Test of Independent* Equations is significant at 1 percent level for each of the three models with following Chi-squares and P-values: $\chi^2(3) = 1968.20$, p-value = 0.000 and $\chi^2(3) = 1970.09$, p-value = 0.000; and $\chi^2(3) = 2061.07$; p-value = 0.000 respectively for models 1, 2 and 3.This indicates that the residuals (disturbance terms) for the three simultaneous equations in each of the models are jointly correlated. Hence the trivariate probit specification is statistically appropriate for the analysis. In spite of this, the table also shows that not all the pair-wise correlation coefficients (ρ_{21}, ρ_{31}, ρ_{32}) are significant. While for model 1, all three correlation coefficients (ρ_{21}, ρ_{31}, ρ_{32}) are significant, only is significant for models 2 and 3. However, the signs for the coefficients are consistent for all three models.

The correlation between pro-immigration preferences for immigrants of the same race (*IMPP1*) and *pro-immigration-economic* is -0.095. The correlation between pro-immigration preferences for immigrants of the same race (*IMPP1*) and *pro-immigration-culture* is -0.120, while the correlation between *pro-immigration-economic* and *pro-immigration-culture* is 0.559. This means that the unobserved factors influencing IMPP1 are negatively correlated with the unobserved factors influencing both *pro-immigration-economic* and *pro-immigration-culture* while the unobserved factors influencing the two endogenous dependent variables are positively correlated with each other. Irrespective of the sign or significance of these coefficients the important point to note is that they control for any correlations between the unobserved variables.

Table 3.4: Benchmark Models–Results from a series of trivariate probit regressions

	Model 1 Immigrants of the same race or ethnicity			Model 2 Immigrants of a different race or ethnicity			Model 3 Immigrants from poor countries Outside Europe		
Observations	33840			33826			33742		
Wald Test of Overall Significance	$\chi^2(120)=7524.51$			$\chi^2(120)=7893.67$			$\chi^2(120)=8051.50$		
P-value	0.000			0.000			0.000		
Likelihood Ratio Test of Independent Equations	$\chi^2(3)=1968.20$			$\chi^2(3)=1970.09$			$\chi^2(3)=2061.07$		
(rho21 = rho31 = rho32 = 0) P-value	0.000			0.000			0.000		
Rho 21:32:31	-0.095** (0.041)	0.559*** (0.013)	-0.120** (0.050)	-0.023 (0.056)	0.559*** (0.013)	-0.052 (0.068)	-0.015 (0.054)	0.567*** (0.012)	-0.002 (0.068)

Explanatory Variables	IMPP1	Pro-immigration-economic	Pro-immigration-culture	IMPP2	Pro-immigration-economic	Pro-immigration-culture	IMPP3	Pro-immigration-economic	Pro-immigration-culture
Pro-immig-economic	0.719*** (0.061)			0.664*** (0.075)			0.631*** (0.074)		
Pro-immig-culture	0.648*** (0.079)			0.658*** (0.103)			0.567*** (0.104)		
Age	-0.003*** (0.001)	0.002* (0.001)	-0.003*** (0.001)	-0.004*** (0.001)	0.002* (0.001)	-0.003*** (0.001)	-0.005*** (0.001)	0.002 (0.001)	-0.003*** (0.001)
Education Level	0.094*** (0.012)	0.141*** (0.010)	0.158*** (0.010)	0.099*** (0.014)	0.140*** (0.010)	0.158*** (0.010)	0.075*** (0.013)	0.142*** (0.010)	0.157*** (0.010)
Citizen	-0.199** (0.079)	-0.464*** (0.068)	-0.344*** (0.070)	-0.151* (0.078)	-0.465*** (0.067)	-0.344*** (0.071)	-0.251*** (0.074)	-0.465*** (0.068)	-0.344*** (0.070)
Female	0.029 (0.027)	-0.221*** (0.026)	-0.025 (0.026)	0.046* (0.026)	-0.222*** (0.026)	-0.022 (0.026)	0.075*** (0.026)	-0.231*** (0.026)	-0.021 (0.026)
Ethnic Minority	0.008 (0.065)	0.199*** (0.063)	0.167*** (0.063)	0.136** (0.064)	0.206*** (0.063)	0.170*** (0.063)	0.150** (0.062)	0.219*** (0.063)	0.160*** (0.062)

Table 3.4: continued

Explanatory Variables	IMPP1	Pro-immigration-economic	Pro-immigration-culture	IMPP2	Pro-immigration-economic	Pro-immigration-culture	IMPP3	Pro-immigration-economic	Pro-immigration-culture
Unemployed	-0.193*** (0.067)	0.039 (0.075)	-0.118* (0.064)	-0.205*** (0.067)	0.028 (0.075)	-0.096 (0.065)	-0.086 (0.064)	0.043 (0.075)	-0.083 (0.066)
Retired	0.031 (0.044)	-0.185*** (0.046)	-0.075* (0.043)	-0.010 (0.044)	-0.186*** (0.046)	-0.071* (0.043)	-0.025 (0.044)	-0.172*** (0.046)	-0.078* (0.043)
Right-wing P. Inclination	-0.024*** (0.007)	-0.045*** (0.006)	-0.062*** (0.006)	-0.046*** (0.007)	-0.047*** (0.006)	-0.063*** (0.006)	-0.054*** (0.007)	-0.047*** (0.006)	-0.064*** (0.006)
Big City	-0.027 (0.035)	0.101*** (0.033)	0.077** (0.033)	0.028 (0.034)	0.105*** (0.033)	0.088*** (0.033)	0.000 (0.034)	0.100*** (0.033)	0.085*** (0.033)
Current Immigration level	-0.025*** (0.006)	-0.017*** (0.006)	-0.027*** (0.006)	-0.030*** (0.006)	-0.017*** (0.006)	-0.029*** (0.006)	-0.015*** (0.006)	-0.017*** (0.006)	-0.027*** (0.006)
Exclusion Restrictions									
Economic Satisfaction		0.057*** (0.006)			0.057*** (0.006)			0.057*** (0.006)	
Job Security		0.011 (0.009)			0.009 (0.009)			0.009 (0.009)	
Life Satisfaction		0.056*** (0.007)	0.052*** (0.006)		0.055*** (0.007)	0.052*** (0.006)		0.056*** (0.007)	0.054*** (0.006)
Multicultural			-0.120*** (0.012)			-0.115*** (0.012)			-0.113*** (0.012)
Traditional			0.048*** (0.009)			0.046*** (0.009)			0.046*** (0.009)
Religious			0.014*** (0.004)			0.013*** (0.004)			0.013*** (0.004)
Constant	0.759*** (0.128)	-0.870*** (0.117)	0.011 (0.123)	0.235* (0.136)	-0.847*** (0.118)	0.027 (0.123)	0.388*** (0.130)	-0.853*** (0.118)	0.023 (0.122)

Robust standard errors in brackets. * significance at 10%; ** significance at 5%; *** significance at 1%. All regressions include country dummies for all countries except Germany (largest sample); coefficients for countries not reported in this table.

62

3.4.1 Economic and Cultural Concerns

After controlling for any common unobserved factors, individual socio-economic and demographic characteristics, country-specific factors, and other factors, the results in the second part of Table 3.4 show that both *pro-immigration-economic* and *pro-immigration-culture* are strong positive and highly significant (at 1 percent significance level) determinants of individual attitudes towards immigration. This result holds irrespective of the type of immigrants in question (i.e. immigrants of the same race, immigrants of a different race or immigrants from poor countries outside Europe).

The results suggest that there is a significant increase in the likelihood that an individual prefers to "allow many" or "allow some" immigrants of the same race or ethnicity to come and live in their country if the individual believes that immigrants are good for the economy. This is given by a coefficient of 0.719 for *pro-immigration-economic* in model 1. The likelihood that the individual is in favour of immigrants of the same race or ethnicity also increases if the individual believes that immigrants enrich the cultural life in their county. This is given by a coefficient of 0.648 for *pro-immigration-culture* in model 1. Similarly the likelihood of a favourable attitude towards immigrants of a different race or ethnicity increases with *pro-immigration-economic* and *pro-immigration-culture* as given by the coefficients 0.664 and 0.658 respectively in model 2. The likelihood of a preference for immigrants from poor countries outside Europe also increases if the individual is *pro-immigration-economic* (0.631) and pro-immigration-culture (0.567).

One point to note is that the difference between the coefficient for *pro-immigration-economic* and *pro-immigration-culture* is relatively smaller for model 2 than models 1 and 3, although for all the models the estimated coefficients for *pro-immigration-economic* is greater than the coefficients for *pro-immigration-culture*. This may be an indication that, although economic concerns are more important than cultural concerns in shaping individual attitudes towards immigration, the relative importance depends on the race or ethnicity of the immigrants. However, it is difficult to interpret magnitudes and compare the coefficient estimates shown in Table 3.4 and one needs to be careful about drawing strong conclusions regarding the magnitudes of the differences between those coefficients.

The computed marginal effects are usually more useful for interpreting and comparing the magnitudes of the coefficients in probit based models. However, for the trivariate probit model used in this study, the marginal effects are computationally complicated. The conventional approach adopted by studies that have used the trivariate probit method (Ramchand, Pacula and Iguchi, 2006) is to calculate the predicted mar-

ginal probabilities with respect to the variables of interest for a reference individual identified by a set of defined (unchanging) characteristics. The predicted marginal probabilities for specific outcomes in the variables of interest can then be compared to give a better idea of the magnitude differences based on the characteristics of the reference individual using the trivariate probit coefficient estimates.

This conventional approach is therefore adopted to help analyse the differences in the impacts of *pro-immigration-economic* and *pro-immigration-culture* on individual attitudes towards immigration. Thus, the marginal predicted probabilities from the coefficient estimates for *pro-immigration-economic* and *pro-immigration-culture* in models 1, 2 and 3 in Table 3.4 are compared based on the characteristics of the same reference individual. This reference individual is a 47 year old *female citizen* of the United Kingdom; her highest level of education is "upper secondary"; she lives in a big city and does not consider herself of an ethnic minority; she is neither unemployed nor retired and neither politically inclined to left nor right; she believes that 10-14 percent of the labour force in the UK are immigrants; her satisfaction with the economy is scored at 4 out of 10 and her satisfaction in life as a whole is scored at 6 out of 10; she is neither *traditional* nor *multicultural* and neither very religious nor completely not *religious*; and she is relatively certain that she will not be *unemployed* and looking for work in the next 12 months (*job security* is equal to 3 out of 5). These identified characteristic are based on the sample means (averages).

The marginal predicted probabilities for the individual identified above are calculated for *pro-immigration-economic* is equal to 1 while *pro-immigration-culture* is equal to 0; then vice-versa (for *pro-immigration-culture* is equal to 1 while *pro-immigration-economic* is equal to 0) for the coefficient estimates from models 1, 2 and 3 (same race immigrant, different race immigrants and immigrants from poor countries outside Europe). Based on the results for the three models in Table 3.4 the calculated marginal predicted probabilities for the three models are plotted in Figure 3.3. The predictions confirm that, although *pro-immigration-economic* has a slightly larger impact than *pro-immigration-culture*, the magnitude of the differences in impacts depends on the type of immigrants.

The predictions show that, where immigrations are of the same race or ethnicity, the probability that the reference individual is in favour of immigration is only 0.023 higher for *pro-immigration-economic* (0.760) than *pro-immigration-culture* (0.737). However, for immigrants of a different race or ethnicity the difference in the predicted probabilities can be considered negligible at 0.002[4]. This means that economic concerns are only more important than cultural concerns where immigrations are of

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[4]The difference is zero at two decimal places.

the same race or ethnicity. Even so, the difference between the two considerations is quite small. This is consistent with the view that immigrants of a different race are more likely to undermine the cultural life in the country, and hence for this group of immigrants the cultural concerns are just as strong as the economic concerns.

In the case of immigrants from poor countries outside Europe, the predicted marginal probability for *pro-immigration-economic* (0.651) is higher than for *pro-immigration-culture* (0.564) with a relatively larger difference (0.87) between the two predictions shown in Figure 3.3. This is consistent with the view that immigrants from poor countries outside Europe are predominantly of low skills and hence are perceived to have a relatively more negative impact on the economy than immigrants from richer countries. Thus, although this group of immigrants are also more likely to be of a different race or ethnicity, the added dimension of their perceived skills attributes make the economic concerns more important than cultural concerns, relative to the case for different race immigrants.

Figure 3.3: Predicted Probabilities for Immigration Policy Preferences from Benchmark models
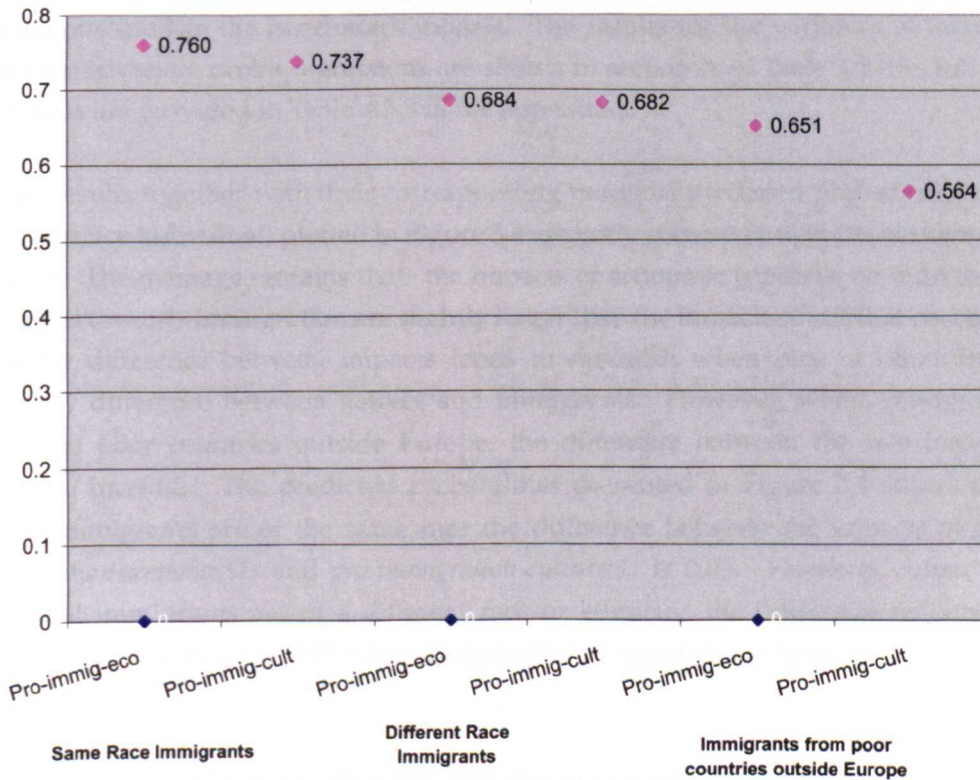
Figure 3.3 also suggests that the probabilities are generally higher for same race immigrants than different race immigrants and generally lower for immigrants from poor countries outside Europe based on the characteristics of the reference individual identified irrespective of economic or cultural concerns. However, the relevance of race, ethnicity and the origin of the potential immigrants are analysed and discussed further in the next subsection.

With regard to the focus of this chapter, the main message from the benchmark models and the corresponding marginal predicted probabilities is that the differences between the impacts of economic and cultural concerns on individual attitudes towards immigration are not substantial and tend to vanish when the potential immigrants are of different race or ethnicity. To ensure that this finding is robust and the evidence is conclusive, a series of sensitivity analyses are undertaken for further discussions.

First, there is a need to find out if the finding is sensitive to the definitions of *pro-immigration-economic* and *pro-immigration-culture* hence these variables are replaced with *pro-immigration-economic(1)* and *pro-immigration-culture(1)* and the benchmark regression are re-run. Recall that these new pair of variables relaxes the definitions of the former pair. Hence the new variables capture more individuals whose *pro-immigration-economic* and *pro-immigration-culture* views are not as strong as in the definitions used in the benchmark models. The results for the variables of interest from the trivariate probit regressions are shown in section A of Table 3.5 (the full set of results are provided in Table A3.3 in the appendix).

These results together with their corresponding marginal predicted probabilities (for the reference individual) plotted in Figure 3.4 are fairly consistent with the benchmark models. The message remains that: the impacts of economic concerns on individual attitudes towards immigration are slightly larger than the impacts of cultural concerns and the difference between impacts tends to diminish when race or ethnicity is the only difference between natives and immigrants. However, when immigrants are from poor countries outside Europe, the difference between the two impacts tends to increase. The predicted probabilities presented in Figure 3.4 shows that when immigrants are of the same race the difference between the impacts of *pro-immigration-economic(1)* and *pro-immigration-culture(1)* is 0.05. However, when the potential immigrants are of a different race or ethnicity, the difference reduces to 0.02 but then increases to 0.07 when the potential immigrants are from poor countries outside Europe.

Having established that relaxing the definitions of *pro-immigration-economic* and *pro-immigration-culture* does not lead to any changes in the findings, next is to check if the findings are also robust to stricter definitions of the variables. The regressions are

Figure 3.4: Predicted Probabilities for Immigration Policy Preferences–models 4, 5 and 6
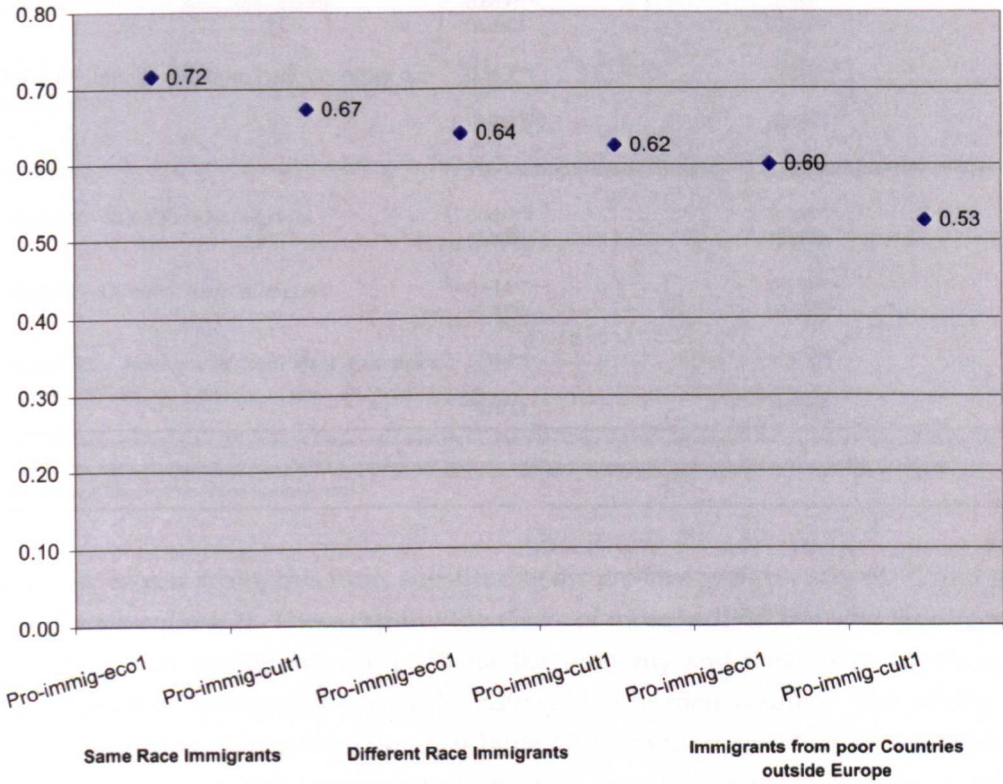
Section A	Pro-immigration-economic(1)	Pro-immigration-culture(1)
Model 4 - Same Race Immigrants	0.714*** (0.057)	0.625*** (0.078)
Model 5 - Different Race Immigrants	0.720*** (0.060)	0.709*** (0.087)
Model 6 - Immigrants from Poor Countries outside Europe	0.722*** (0.064)	0.573*** (0.099)
Section B	**Pro-immigration-economic(2)**	**Pro-immigration-culture(2)**
Model 7 - Same Race Immigrants	0.788*** (0.072)	0.712*** (0.073)
Model 8 - Different Race Immigrants	0.669*** (0.080)	0.753*** (0.107)
Model 9- Immigrants from Poor Countries outside Europe	0.569*** (0.084)	0.738*** (0.107)
Section C	**Pro-immigration-economic**	**Pro-immigration-culture**
Model 10 - Same Race Immigrants	0.648*** (0.069)	0.468*** (0.092)
Model 11- Different Race Immigrants	0.614*** (0.073)	0.636*** (0.122)
Model 12 - Immigrants from Poor Countries outside Europe	0.533*** (0.076)	0.814*** (0.088)

This table shows the results for Key variables from various sensitivity analyses involving a series of trivariate probit regressions. The full results are shown in the Appendix Tables A3.3 A3.4 and A3.5. Robust standard errors are shown in brackets. * indicates significance at 10%; ** indicates significance at 5%; and *** indicated significance at 1%.

therefore re-run again, this time, substituting for *pro-immigration-economic(2)* and *pro-immigration-culture(2)*. These capture the views of those individuals who are strongly convinced that immigrants are good for the economy and those who are strongly convinced that immigrants enrich the cultural life in their country. The results for these regressions, shown in section B of Table 3.5, seem to suggest that, for immigrants of a different race and immigrants from poor countries outside Europe, cultural concerns are more important than economic concerns. This result is confirmed by the marginal predicted probabilities (plotted in Figure 3.5) related to the estimated coefficients.

The predicted probabilities for the reference individual show that when immigrants are of the same race or ethnicity, the impact of economic concerns on individual attitudes towards immigration are slightly larger (by 0.03) than the impact of cultural concerns. However, when immigrants are of a different race or ethnicity, the impact of cultural concerns becomes slightly more important (by 0.01) than the impact of economic concerns. Cultural concerns are also slightly more important (by 0.02)

than economic concerns when immigrants are from poor countries outside Europe, according to the predicted probabilities. Thus, when *pro-immigration-economic* and *pro-immigration-culture* are narrowly defined to reflect only strong optimistic views of individuals regarding the economic and cultural effects of immigrants, the impact of cultural concerns becomes slightly larger than economic concerns except for the case where immigrants are of the same race or ethnicity.

Figure 3.5: Predicted Probabilities for Immigration Policy Preferences–models 7, 8 and 9
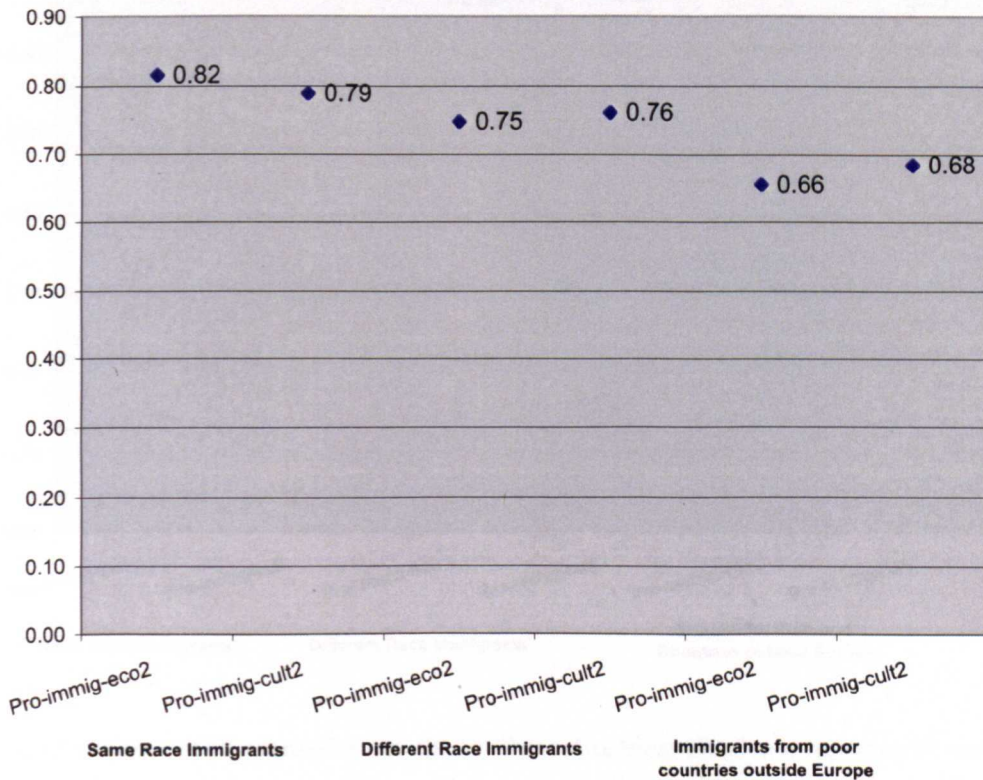
For the next sensitivity analyses, the benchmark model is modified in four ways. First the individual's level of education is replaced with their *years of schooling* as a proxy both for their education and skill level as well as their personal income level. Second, the variable *citizen* is replaced with *born in the country* which take the value if the individual was born in the country; as opposed to just having a citizenship status. This is because many of those who are citizens may not necessarily be natives and may be first generation immigrants who have citizenship status. Third, the dummy variable *worked abroad* is included as an additional control for contact with foreigners. This takes the value 1 if the individual has ever done paid work in another country for six months or more in the last ten years. Forth, an additional control, *household income* is included in the model. This variable, though expected to correlate with the individual's own income, relates to and controls for the individual's social status. Thus, an individual's own education level may be low signifying a low personal

income but they may have a spouse who's personal income may be very high and hence may be accustomed to living, behaving and having the attitudes of a high income person.

Figure 3.6: Predicted Probabilities for Immigration Policy Preferences–models 10, 11 and 12
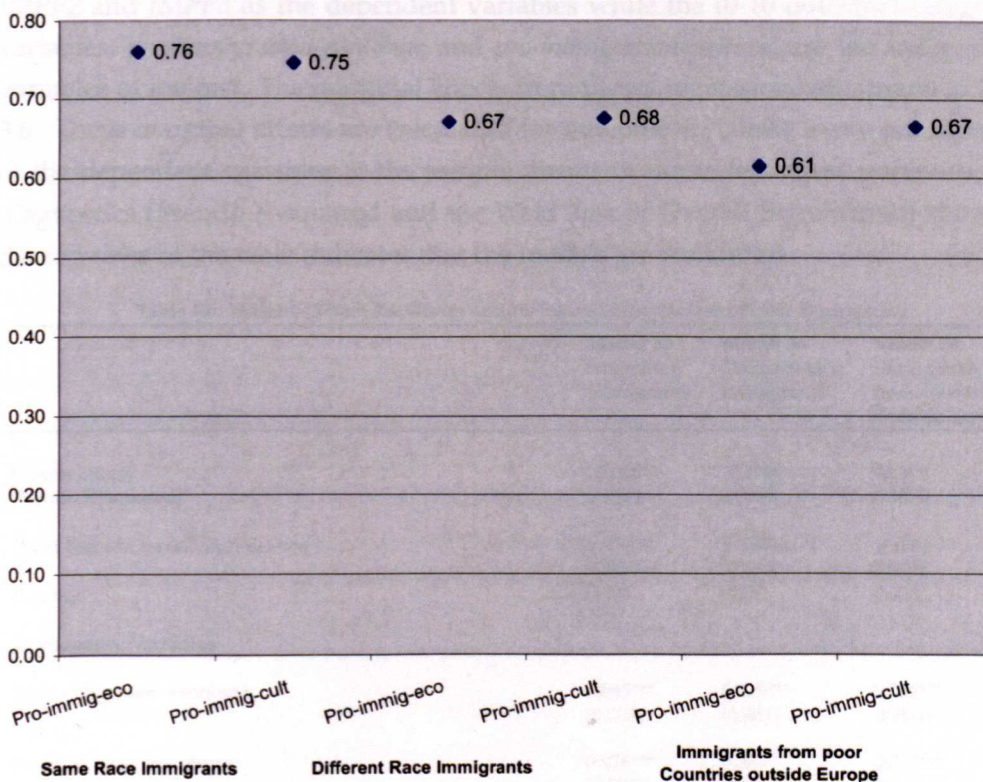
The trivariate probit regression results for this robustness check are reported in section C of Table 3.5 and the associated predicted marginal probabilities are shown in Figure 3.6. The results are marginally different from the benchmark results but consistent with the results from Section B. The predicted probabilities show that the impact of economic concerns on individual attitudes towards immigration is slightly larger (by 0.01) than the impact of cultural concerns when the potential immigrants are of the same race or ethnicity. On the other hand, the impact of cultural considerations is negligibly larger (also by 0.01) than economic considerations when the potential immigrants are of a different race or ethnicity. Similarly, the predicted probability for *pro-immigration-cultural* is 0.06 points larger than the predicted probability for *pro-immigration-economic* when the potential immigrants are from poor countries outside Europe. Interestingly the predicted probabilities for pro-immigration-culture for the case where immigrants are of a different race or ethnicity and the case where immigrants are from poor countries outside Europe are almost the same (0.68 and 0.67).

The sensitivity of the results to econometric method is examined in the final robustness check. This involves employing a standard ordered probit model estimation and disregarding any possible endogeneity or joint dependence issues. Thus, three uni-variate ordered probit regressions are run with the original ordered variables, *IMPP1*, *IMPP2* and *IMPP3* as the dependent variables while the (0-10 outcome) categorical variables, *pro-immigration-economic* and *pro-immigration-culture*, are the independent variables of interest. The marginal effects from theses regressions are shown in Table 3.6. These marginal effects are calculated for outcome 4 ("allow many immigrants") of the dependent variables at the sample means of the independent variables. The diagnostics (Pseudo R-squared and the Wald Test of Overall Significance) shown in the top rows of the table indicates that the models are well fitted.

Table 3.6: Marginal Effect Results (at sample means) from Ordered Probit Regressions

	Model 13 Same Race Immigrants	Model 14 Different race Immigrants	Model 15 Immigrants from poor countries Outside Europe
Observations	25,059	25,058	24,978
Pseudo R-squared	0.1399	0.1769	0.1630
Wald Test of Overall Significance	$\chi^2(38)=$ 3105.7	$\chi^2(38)=$ 3752.8	$\chi^2(38)=$ 3767.7
P-value	0.000	0.000	0.000
Explanatory Variables			
Pro-immigration-economic	0.045*** (0.002)	0.025*** (0.001)	0.024*** (0.001)
Pro-immigration-culture	0.028*** (0.002)	0.020*** (0.001)	0.017*** (0.001)
Age	-0.000 (0.000)	-0.001*** (0.000)	-0.000*** (0.000)
Education level	0.019*** (0.003)	0.009*** (0.001)	0.006*** (0.001)
Citizen	-0.016 (0.020)	-0.002 (0.010)	-0.015 (0.010)
Female	0.004 (0.007)	0.001 (0.004)	0.008** (0.003)
Ethnic Minority	0.009 (0.018)	0.025** (0.010)	0.018* (0.010)
Unemployed	-0.034* (0.019)	-0.017* (0.009)	-0.008 (0.009)
Retired	0.006 (0.012)	0.007 (0.007)	-0.003 (0.006)
Right-wing Political Inclination	-0.008*** (0.002)	-0.006*** (0.001)	-0.007*** (0.001)
Big City	0.004 (0.010)	0.006 (0.005)	-0.000 (0.005)
Worked Abroad	0.017 (0.017)	0.007 (0.007)	0.000 (0.007)
Current Immigration level	-0.002 (0.002)	-0.002** (0.001)	-0.000 (0.001)
Household Income	0.004*** (0.001)	0.002** (0.001)	0.001 (0.001)

The coefficients are marginal effects calculated at the sample means for outcome 4 (allow many immigrants). Robust standard errors in * Indicates significance at 10%, ** significance at 5%, *** significance at 1%. All regressions include country dummies for all countries except Germany (largest sample); coefficients for countries not reported in this table.

The results for *pro-immigration-economic* and *pro-immigration-culture* are fairly similar to the benchmark results. Thus, the results show that, for immigrants of the same race or ethnicity, a unit increase in *pro-immigration-economic* leads to a 4.5 percent increase in the probability that the individual will choose to "allow many immigrants" while a unit increase in *pro-immigration-culture* only leads a 2.4 percent increase. When immigrants are of a different race, the probabilities are 2.5 percent and 2.0 percent for *pro-immigration-economic* and *pro-immigration-culture* respectively and when the immigrants are from poor countries outside Europe the probability increases by 2.4 percent and 1.7 percent respectively. With these increases in the probabilities, one can still argue that the impact of *pro-immigration-economic* is not sizeably different from the impact of *pro-immigration-culture* and the magnitude of the differences between the two depends on the type of immigrants.

Table 3.7 presents a few more marginal effects calculated from the ordered probit regressions. To capture the full impacts of the key variables, the marginal effects are calculated, first, for the cases where *pro-immigration-economic* is equal to 10 (immigrants are good for the economy) while *pro-immigration-culture* is equal to 0 (immigrants undermine the cultural life in the country) and second, for the cases where *pro-immigration-economic* is equal to 0 and *pro-immigration-culture* is equal to 10. These marginal effects highlight the point that the size of the differences between the impacts of economic and cultural concerns depends on the type of immigrants. For example, the overall probability of choosing to "allow many" immigrants of the same race is 29 percent when *pro-immigration-economic* is equal to 10 and *pro-immigration-culture* is equal to 0. This falls by about 16.7 percent to 12.3 percent when *pro-immigration-economic* is equal to 0 and *pro-immigration-culture* is equal to 10. However, the overall probability of choosing to "allow many" immigrants of a different race or ethnicity is only 9.6 percent when *pro-immigration-economic* is equal to 10 and *pro-immigration-culture* is equal to 0; falling (by only 4.5 percent) to 5.1 percent when *pro-immigration-economic* is equal to 0 and *pro-immigration-culture* is equal to 10. With regards to immigrants from poor countries outside Europe, the overall probability of choosing to "allow many" immigrants is 10.7 percent when *pro-immigration-economic* is equal to 10 and *pro-immigration-culture* is equal to 0. This falls by 6.4 percent to 4.3 percent when *pro-immigration-economic* is equal to 0 and *pro-immigration-culture* is equal to 10.

As an additional robustness check, all the categorical variables in the benchmark models are redefined as dummy variables. Thus, *education level* is broken down into seven dummy variables - one dummy variable for each category of education level reported. This yields the following dummy variables which are used in the regressions in models 13, 14 and 15: *Not completed primary education (Reference group); Primary or first stage of basic; Lower secondary or second stage of basic; Upper secondary; Post secondary,*

	Model 13 Same Race Immigrants	Model 14 Different race Immigrants	Model 15 Immigrants from poor countries Outside Europe
Overall Predicted Probability	**29%**	**9.6%**	**10.7%**
Pro-immigration-economic=10	0.054*** (0.004)	0.029*** (0.004)	0.032*** (0.004)
Pro-immigration-culture=0	0.033*** (0.002)	0.024*** (0.001)	0.023*** (0.001)
Overall Predicted Probability	**12.3%**	**5.1%**	**4.3%**
Pro-immigration-economic=0	0.032*** (0.001)	0.018*** (0.001)	0.016*** (0.001)
Pro-immigration-culture=10	0.020*** (0.003)	0.015*** (0.002)	0.011*** (0.002)
Overall Predicted Probability	**66.3%**	**53.6%**	**50.1%**
Pro-immigration-economic=10	0.058*** (0.002)	0.069*** (0.003)	0.069*** (0.003)
Pro-immigration-culture=10	0.036*** (0.002)	0.055*** (0.003)	0.050*** (0.003

non-tertiary; First stage of tertiary; and *Second stage of tertiary.*

The *political inclination* variable is re-coded as a dummy variable (*Rightwing*) that takes the value of 1 if the respondent's self reported political inclination is above 6 on a scale of 0-10 (where 0 represents left-wing political inclinations and 10 represents right-wing political inclinations). The variable that measures the subjective views of respondent regarding the size of the immigrant population in their country (*current immig. level*) is also re-coded as a binary variable. It takes the value 1 if the individual believes that the size of the immigrant population in their country is above 19 percent; and zero otherwise. The two additional variables that serve as exclusion restrictions, *economic satisfaction* and *life satisfaction*, are also re-coded into three dummy variables each. In each case these dummy variables are: *extremely dissatisfied, satisfied* and *extremely satisfied.*

Other redefined categorical variables are *job security, multicultural, traditional and religious.* These are all re-coded as dummy variables. *Job security* takes the value of 1 if the respondent does not think they are going to lose their job in the next 12 months; *Multicultural* takes the value of 1 if the respondent considers themselves as being open to other cultures; *Traditional* takes the value of 1 if the respondent describes himself as someone who like to stick to customs and traditions; *religious* take the value 1 for an

individual who scores himself above 6 on the religious scale of 0-10.

A set of regressions are run using all these redefined categorical variables and the results (provided models 13, 14 and 15) are shown in Table A3.6 in the appendix. It is seen that one of our key variables, *Pro-immg-culture*, loses significance in model 13. As expected, this means that, where immigrants are of the same race or ethnic group, cultural concerns are not significant though economic concerns are still significantly important. Where immigrants are of a different race, cultural concerns begin to play an important role though economic concerns are still stronger. However, where immigrants come from poor countries outside Europe, cultural concerns begin to show stronger importance than economic concerns. Thus for the key variables, story remains the same. Thus, the higher the cultural distance, the more important the cultural concerns hence economic motivations are not always the dominant determinants of individual attitudes towards immigration. The results for Education levels and the other re-categorised dummy variables are discussed in subsection 3.4.3.

Having looked at the robustness of the benchmark findings vis-à-vis the definitions of the key variables, further controls, extensions and econometric method, one can conclude that there is no strong evidence in support of the notion that economic concerns are more important than cultural considerations in shaping individual attitudes towards immigration. Even though for immigrants of the same race or ethnicity, the evidence is consistently supportive of this notion (in all the sensitivity analysis), the impact of economic concerns are not sufficiently larger than cultural concerns. In fact, the analyses show that when the benchmark models are extended or when *pro-immigration-economic* and *pro-immigration-culture* are re-defined to related to stronger views, cultural considerations start to become more important for immigrants of different race or ethnicity and immigrants from poor countries outside Europe (although not by a considerable margin). Thus, either way, one cannot conclude that economic concerns are more important than cultural considerations or cultural considerations are more important than economic concerns in shaping individual attitudes towards immigration. On the other hand, the findings do not corroborate the conclusions from Card, Dustmann and Preston (2005). This might be due to the fact that the 2008/09 ESS coincides with a period of economic recession in most European countries hence respondents might generally be more conscious about the economic atmosphere. This is likely to be reflected in their economic concerns. The analyses also show that the race or ethnicity; the origin of the potential immigrants; and the absoluteness of the individual's economic and cultural views matter for which concerns are more important in shaping their attitudes.

3.4.2 Race, Ethnicity and Origin of Immigrants

It is seen from the results and discussion above that the race or ethnicity as well as the origin of the potential immigrants (i.e. the type of immigrants) matter not only for the magnitudes of the differences between the impacts of *pro-immigration-economic* and *pro-immigration culture* but also for pro-immigration attitudes in general. This subsection of the results and discussion focuses on exploring the differences in individual attitudes towards immigration stemming from race, ethnicity and origin of immigrants. Observationally, all the results above show that, irrespective of economic and cultural concerns, the attitudes towards immigrants of the same race or ethnicity are generally more favourable than attitudes towards different race immigrants and immigrants from poor countries outside Europe. The aim in this subsection is, therefore, to find out if there are significant differences in general attitudes towards immigrants of the same race or ethnicity on one hand and immigrants of a different race or ethnicity as well as immigrants from poor countries outside Europe on the other hand. Statistical tests are carried out on the results across models for the ensuing discussion.

Table 3.8: Paired T-Test for Differences in the means of IMPP1, IMPP1 and IMPP3

Null Hypothesis	Test Statistic
Mean(IMPP1-IMPP2)<0	t= 106.0175
P-Value	0.0000
Mean(IMPP1-IMPP3)<0	t= 113.4193
P-Value	0.0000
Mean(IMPP2-IMPP3)<0	t=30.1398
P-Value	0.0000

As a first step to checking whether there are racially motivated differences in attitudes towards immigration, simple paired t-tests are used to compare the differences in the means of IMPP1, IMPP2 and IMPP3. The test pairs the two variables by matching each element of one variable to its corresponding element of the other variable and examines the mean of individual differences of paired outcomes (preferences). Thus, it is based on the pair-wise differences in values of matched observations of the two variables. The null hypothesis is that the population mean of individual differences of paired observations is less than zero. A significant P-value rejects the null, indicating there is a significant difference between the two variables.

Recall that from the descriptive statistics it is shown that the mean of IMPP1 is greater than the mean of IMPP2 which is also greater than the mean of IMPP3. Table 3.8

shows significant p-values for all three paired one tail test. This indicates that the null hypotheses specified in the table may be rejected. Thus, people are generally more in favour of immigrants of the same race than they are of immigrants of different race and immigrants from poor countries outside Europe. In addition, Europeans are generally more in favour of immigrants of a different race or ethnicity than immigrants from poor countries outside Europe. Even though, immigrants from poor countries outside Europe are generally of a different race or ethnicity, the higher opposition of this type of immigrants in Europe may be due to the perception that they (immigrants from poor countries outside Europe) are predominantly also of low skills (Hainmueller and Hiscox, 2007).

Having established that general attitudes are more favourable towards immigrants of the same race, the next table (Table 3.9) presents all the overall marginal predicted probabilities for all the previous trivariate regressions discussed in this chapter. The conclusion from these overall predictions for models 1 to 12 is that, based on the sample means, the probability of choosing to allow immigrants of the same race is always the highest followed by the probability of choosing to allow immigrants of a different race with the probability of choosing to allow immigrants from poor countries outside Europe always the lowest. This conclusion is irrespective of individual cultural and economic concerns. The overall predicted probabilities for the ordered probit regressions presented in the bottom part of Table 3.7 (above) tell the same story.

Table 3.9: Overall Predicted Marginal Probabilities from the Trivariate Probit Regressions

Variable	Observations	Mean	Std. Dev.	Min	Max
Model 1	36716	0.671	0.218	0.117	0.997
Model 2	36716	0.515	0.256	0.009	0.996
Model 3	36716	0.475	0.252	0.008	0.995
Model 4	36716	0.672	0.228	0.092	0.995
Model 5	36716	0.515	0.27	0.005	0.994
Model 6	36716	0.475	0.263	0.005	0.993
Model 7	36716	0.67	0.203	0.136	0.999
Model 8	36716	0.513	0.242	0.01	0.999
Model 9	36716	0.474	0.244	0.01	0.998
Model 10	25271	0.689	0.203	0.101	1
Model 11	25271	0.534	0.248	0.015	0.999
Model 12	25271	0.485	0.262	0.017	0.997

However, with regard to the ordered probit regressions (models 13-15), one can

bring the three regressions together in a seeming unrelated estimation (SUEST)[5]. This allows cross-model hypothesis testing and variable comparisons. By employing this procedure, the Wald test is used to compare the results for *pro-immigration-economic* and *pro-immigration-culture* across the models. The results of the tests are presented in Table 3.10. The tests show that *pro-immigration-culture* is significantly different between all model pairs (i.e. between models 13 and 14; 13 and 15 as well as 14 and 15). However, *pro-immigration-economic* is significantly different (weakly) between models 13 and 14 as well as models 13 and 15 but not significantly different between models 14 and 15. This suggests that the impact of cultural concerns vary significantly for immigration attitudes across the three types of immigrants while the impact of economic concerns vary less across same race, different race and immigrants from poor countries outside Europe.

Table 3.10: Test Statistics after SUEST for Ordered Probit Regressions

Wald Test after Seeming Unrelated Probit Estimations of Models 13, 14 and 15	Pro-immigration-economic	Pro-immigration-culture
Model 13=Model 14	$\chi^2(1)=3.40$	$\chi^2(1)=30.76$
P-Value	0.0652	0.0000
Model 13=Model 15	$\chi^2(1)=2.84$	$\chi^2(1)=12.01$
P-value	0.0931	0.0005
Model 14=Model 15	$\chi^2(1)=0.00$	$\chi^2(1)=5.90$
P-value	0.9560	0.0151

3.4.3 Other Explanatory Variables

With regard to the socio-economic background control variables, the results presented in Table 3.4 are qualitatively consistent and similar across all the estimated models including the robustness check results shown in the appendix Tables A3.3, A3.4 and A3.5. The results show that a year's increase in age reduces the likelihood of choosing to allow immigrants (of any kind) and also reduces the likelihood of believing that immigrants enrich the cultural life in the country. However, a year's increase in age increases the likelihood that and individual believes immigrants are good for the economy. Higher levels of education leads to a higher probability that the individual will choose to allow immigrants and a higher probability that the individual is both *pro-immigration-economic* and *pro-immigration-culture*. This result is made clear when the education level dummy variables are used. Appendix Table A3.6 shows that below the first stage of tertiary educations, a persons education level does not matter to their attitude towards immigration. However, having first and second stage tertiary educations influence's one's attitude towards immigration. People with first stage

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[5]With the help of Stata's SUEST post-estimation command.

77

tertiary education level tend to place more with on cultural concerns than people with second stage tertiary education while people with second stage tertiary education also place more importance on economic concerns than people with first stage tertiary education.

As expected, being a citizen of the country has a negative impact on all pro-immigration attitudes and views. The results for female are mixed. They show that being female increases the likelihood of being in favour of immigration except for immigrants of the same race. This is in spite of the fact that being female reduces the likelihood of being *pro-immigration-economic* and being female does not matter for cultural concerns. If an individual consider them self as part of an ethnic minority they are more likely to have pro-immigration attitudes but this does not affect their likelihood of being in favour of immigrants of the same race as majority of people in the country. Being unemployed decreases the likelihood of being in favour of immigration, although the results for immigrants from poor countries outside Europe are not significant. Interestingly, being unemployed has no significant impact on *pro-immigration-economic* but has a weakly significant negative coefficient for *pro-immigration-culture* when immigrants are of the same race.

Retired individuals are less likely to think that immigrants are good for the economy and are also less likely to think that immigrants enrich the cultural life in country though this does not have a significant impact on their immigration policy preferences. The more right-winged a person is, the more likely they are to be anti-immigration with pessimistic economic and cultural concerns. These concerns are stonger for immigrants of a different race and immigrants from poor countries outside Euroipe than they are for immigrants of the same race or ethnicity. Individuals who live in a big city are more likely to be *pro-immigration-economic* and *pro-immigration-culture* though this does not affect their immigration policy preferences. The higher an individual's subjective estimate of the proportion of immigrants in the country, the lesser their likelihood of have pro-immigration attitudes. If an individual has worked abroad for 6 month and above, they are more likely to be *pro-immigration-economic* but this has no significant impact on their immigration policy preferences and this no effect on their views regarding the effect of immigrants on the cultural life in the country. The final control variable is *household income* (included in models 10, 11 and 12). The results show that individuals from higher income households are more likely to have all pro-immigration attitudes though the coefficient is insignificant for immigrants from poor countries outside Europe (model 10).

3.4.4 Additional Control Variables: Exclusion Restrictions

With regard to the additional control variables that satisfy the exclusion restriction conditions imposed on the trivariate probit model used in this study, the results are qualitatively consistent and very similar across all the regressions. The results, shown in the bottom part of Table 3.4 (as well as Table A3.3, A3.4 and A3.5 in the appendix), indicate that individuals who report a higher satisfaction with their country's economy and in life, are more likely to think that immigrants are good for the economy. Thus, general optimism about life and about the economy leads to more optimistic views about the effect of immigrants on the economy. Higher levels of satisfaction in life also increase the likelihood of being *pro-immigration-culture*.

The extent to which an individual feels they are likely to be unemployed and looking for work in the next twelve months has no significant impact on their *pro-immigration-economic* outcome. The variables, *multicultural* and *traditional* both have the expected effect on *pro-immigration-culture*. Note that both variables are categorical variables with 1-6 outcomes where 1 signifies higher levels of the individual's *multicultural* or *traditional* nature. This means that the negative coefficient for *multicultural* means that the more *multicultural* a person is, the more likely they are to think that immigrants enrich the cultural life in the country. A positive coefficient for *traditional* indicates that the more traditional a person is, the less likely they are to think that immigrants enrich the cultural life in the country. The results, across all the regressions also show that, more religious people are more likely to think that immigrants enrich the cultural life in the country.

According to Cappallari and Jenkins (2003) the Stata program for implementing the multivariate model does not require any exclusion restrictions for the model to be identified. However the variables in this subsection are treated as though they were exclusion restriction variables. This is not because they are needed as instruments but because there are needed as control variables in the respective equations. Thus, the variables are not instruments in the strict sense. Hence there is no need or no reason for any tests of over-identifying restrictions. Nevertheless, a simple refutability test which involves finding insignificant effects of those variables in the main y_1^* equation. Table 3.11 presents the results of Wald Text after a series of probit regressions for the main equation in the trivariate model.

The tests show that while Economic Satisfaction, Job Security and Traditional are significant determinants of individual immigration preferences for migrants of the same race, Life Satisfaction, Multicultural and Religious are not. Thus Life Satisfaction, Multicultural and Religious are justifiable excluded in the model. Even though

Table 3.11: Wald Test of Significance after Probit Estimates

Variables	Immigrants of the same Race	Immigrants of a different Race	Immigrants from poor countries outside Europe
	Chi-Squared (P-Value)	Chi-Squared (P-Value)	Chi-Squared (P-Value)
Economic Satisfaction	14.41 (0.001)	13.98 (0.0002)	22.61 (0.0000)
Life Satisfaction	2.51 (0.113)	0.16 (0.6930)	0.01 (0.9105)
Job Security	6.87 (0.0088)	2.22 (0.1361)	2.72 (0.0988)
Multicultural	2.17 (0.1406)	18.16 (0.0000)	7.42 (0.0065)
Traditional	6.31 (0.0116)	13.45 (0.0002)	3.36 (0.0666)
Religious	1.92 (0.1657)	0.32 (0.5708)	4.78 (0.0288)

Economic Satisfaction, Job Security and Traditional turn out to be significant the argument remains that their effects on individual immigration preferences for migrants are channeled through pro-immigration-economic and pro-immigration-culture rather than a direct effect. it is also seen that Economic Satisfaction, Multicultural and Traditional are also significant determinants for attitudes towards immigrants of a different race while Life Satisfaction, Job Security and Religious are justifiably excluded. Life Satisfaction, Job Security are also justifiably excluded in the equation for the determinants of individual attitudes towards immigrants from poor countries outside Europe.

80

3.5 Conclusions

The literature on attitudes towards immigration has established that both economic and cultural effects of immigrants are important determinants of individual attitudes towards immigration. However the economic literature often implicitly assumes that economic concerns are relatively more important than cultural concern for individual attitudes towards immigration, yet, the economic literature has not provided systematic evidence to arrive at this implicit conjecture.

The main focus of this chapter is therefore to empirically analyse the relative importance of economic and cultural concerns as determinants of individual attitudes towards immigration where the potential immigrants differ by race and ethnicity as well as by origin (which has connotation for the perceived skill attributes of the potential immigrants). The study uses data from the 2008/09 edition of the European Social Survey and employs a trivariate probit model which allows the joint estimation of immigration policy preferences with the economic and cultural views of individuals regarding the effects of immigrants. The analysis in the chapter yields two main conclusions.

First, the relative importance of the impact of individual concerns regarding the effects of immigrants on the economy is not conclusively greater than the impact of individual concerns regarding the cultural effects of immigrants on individual attitudes towards immigration. Thus, the impact of economic concerns on individual attitudes towards immigration are found only to be consistently higher than the impact of cultural concerns for the case where the potential immigrants are of the same race or ethnicity as most people in the country; even so, the margins between the two impacts are very small and sometimes negligible.

The relative importance of economic and cultural concerns on individual attitudes towards immigration is found to be sensitive to the definitions of pro-immigration-economic and pro-immigration-culture. As the definitions of the variables are tightened (capturing only the more extreme views), the impact of cultural concerns tends to become slightly more important than the impact of economic concerns in shaping attitudes towards immigrants of different race or ethnicity and immigrant from poor countries outside Europe. Thus, it cannot be concluded, based on the evidence, that economic concerns are inherently more important than cultural concerns in shaping individual immigration policy preferences.

One should, however, note, that the evidence in this study are based on surveys that were conducted between 2008 and 2009 when most of western Europe was

experiencing an economic recession. Hence the economic concerns may even be exaggerated due to the generally difficult economic atmosphere in Europe around the time of the surveys.

The second conclusion is that, there are significant differences in the individual attitudes towards different kinds of immigration. Thus, all other things remaining constant, the individual immigration policy preferences are generally highest for immigrants of the same race or ethnicity and lowest for immigrants from poor countries outside Europe with preferences for immigrants of a different race or ethnicity in the middle.

The conclusions in this chapter highlight the point that studies on the effects of immigration as well as immigration policy studies need to find ways of incorporating cultural effects for a more comprehensive understanding of immigration issues. It also means that one should be careful in making generalisations and drawing strong conclusions from studies that focus only on either cultural or economic effects of immigrants alone.

Appendix to Chapter 3

3.A   Appendix to Chapter 3

Table A3.1: Sample Distribution by Country

Country ISO Code	Country	Unweighted Sample		Weight Sample	
		Number of observations	Percentage of total	Number of observations	Proportion of weighted observation
DE	Germany	2,751	5	7094	12.14
ES	Spain	2,576	4.68	3866	6.61
RU	Russian Federation	2,512	4.57	12000	20.73
IL	Israel	2,490	4.53	514	0.88
TR	Turkey	2,416	4.39	5194	8.89
PT	Portugal	2,367	4.3	899	1.54
GB	UK	2,352	4.28	5044	8.63
BG	Bulgaria	2,230	4.06	662	1.13
FI	Finland	2,195	3.99	441	0.75
RO	Romania	2,146	3.9	1825	3.12
FR	France	2,073	3.77	5054	8.65
GR	Greece	2,072	3.77	961	1.64
CZ	Czech Republic	2,018	3.67	890	1.52
LV	Latvia	1,980	3.6	196	0.34
UA	Ukraine	1,845	3.36	3969	6.79
SE	Sweden	1,830	3.33	764	1.31
CH	Switzerland	1,819	3.31	642	1.1
SK	Slovakia	1,810	3.29	455	0.78
NL	Netherlands	1,778	3.23	1347	2.3
BE	Belgium	1,760	3.2	887	1.52
EE	Estonia	1,661	3.02	114	0.2
PL	Poland	1,619	2.94	3221	5.51
DK	Denmark	1,610	2.93	447	0.76
NO	Norway	1,549	2.82	383	0.66
HU	Hungary	1,544	2.81	854	1.46
HR	Croatia	1,484	2.7	375	0.64
SI	Slovenia	1,286	2.34	175	0.3
CY	Cyprus	1,215	2.21	65	0.11
Total		54,988	100	58000	100

Table A3.2: Individual Age and Education Level Distribution by Country

Country	Individual Age		Education Level	
	Mean	Std. Dev	Mean	Std. Dev
Portugal	52.75	19.96	1.84	1.45
Bulgaria	51.84	17.66	2.92	1.18
Slovakia	50.09	17.15	3.13	0.93
Netherlands	49.31	17.78	3.11	1.36
Denmark	49.26	18.07	3.47	1.17
UK	49.15	18.57	3.33	1.35
Germany	48.96	17.43	3.65	1.12
Ukraine	48.84	18.68	3.70	1.40
France	48.65	18.72	3.04	1.55
Switzerland	48.59	18.34	3.32	1.18
Latvia	48.32	18.57	3.50	1.18
Finland	47.97	18.76	3.14	1.48
Hungary	47.78	19.07	2.43	1.32
Estonia	47.78	19.24	3.29	1.21
Sweden	47.60	19.27	3.30	1.44
Croatia	47.31	18.26	2.63	1.41
Russian Federation	47.21	19.00	3.60	1.22
Czech Republic	47.10	17.34	3.07	0.79
Spain	46.83	19.16	2.20	1.55
Slovenia	46.56	18.91	2.56	1.41
Belgium	46.46	18.73	3.18	1.42
Romania	46.08	17.67	2.84	1.16
Norway	45.76	17.85	3.65	1.19
Israel	45.42	19.10	3.17	1.55
Greece	45.04	16.75	2.80	1.38
Cyprus	44.81	17.79	3.06	1.43
Poland	44.64	18.96	2.73	1.37
Turkey	39.61	16.49	1.71	1.36
Total	47.53	18.52	3.00	1.42

Figure A3.1: Country Proportions of Unemployed and Retired

Country	Proportion of Unemployed	Proportion of Retired
UA	5	36
PT	5	35
SK	4	34
BG	7	34
HU	6	32
RU	3	31
SI	3	31
HR	7	30
PL	4	30
FR	4	29
DK	2	28
LV	8	28
EE	4	28
FI	2	27
CZ	3	27
RO	2	26
GB	3	26
DE	5	25
CH	3	23
BE	3	22
SE	3	21
NL	2	21
IL	5	18
GR	5	18
ES	5	17
CY	1	17
NO	2	16
TR	11	10

□ Proportion of Unemployed ■ Proportion of Retired
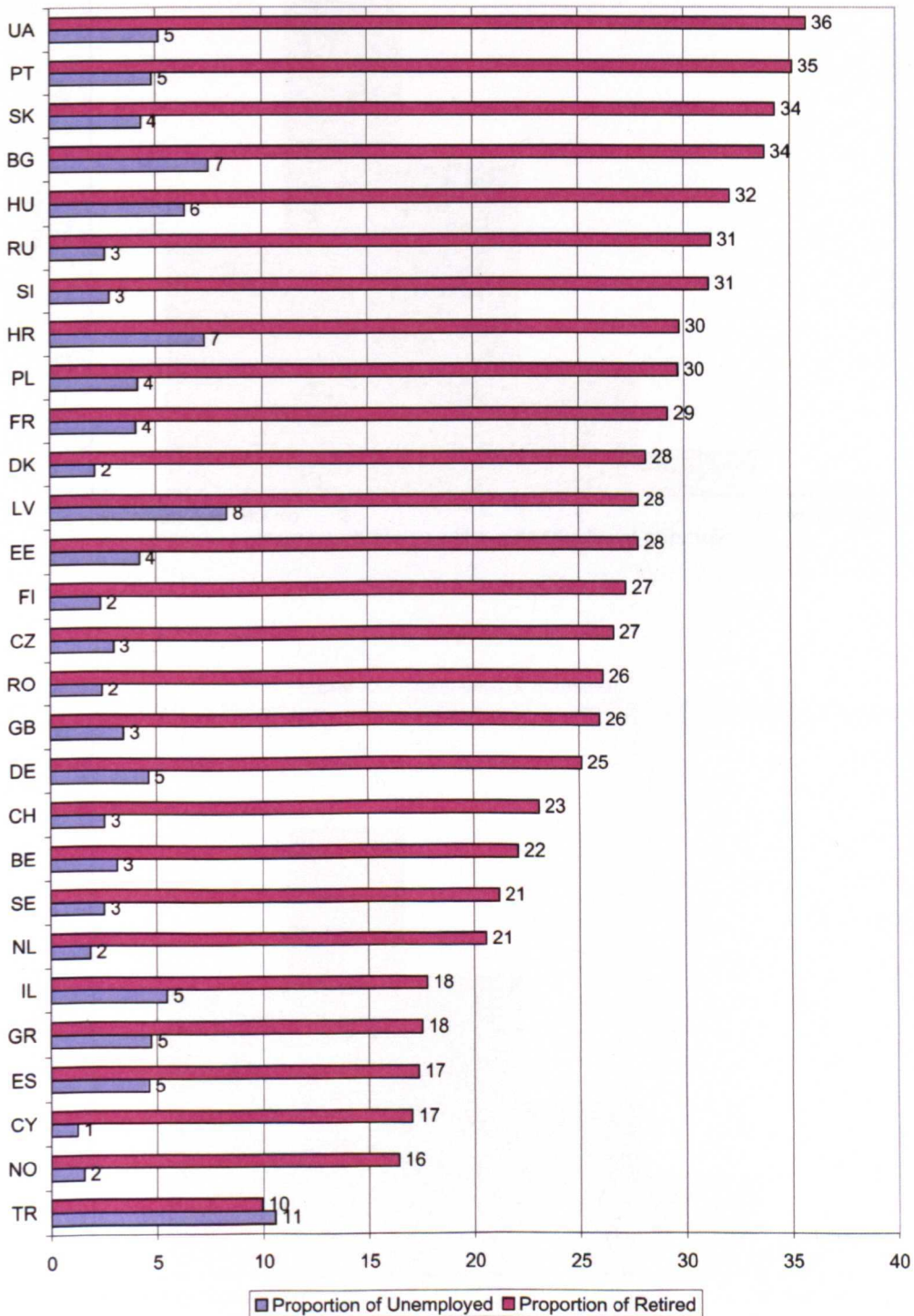
Figure A3.2: Distribution of Multicultural

How much are you like a multicultural person?
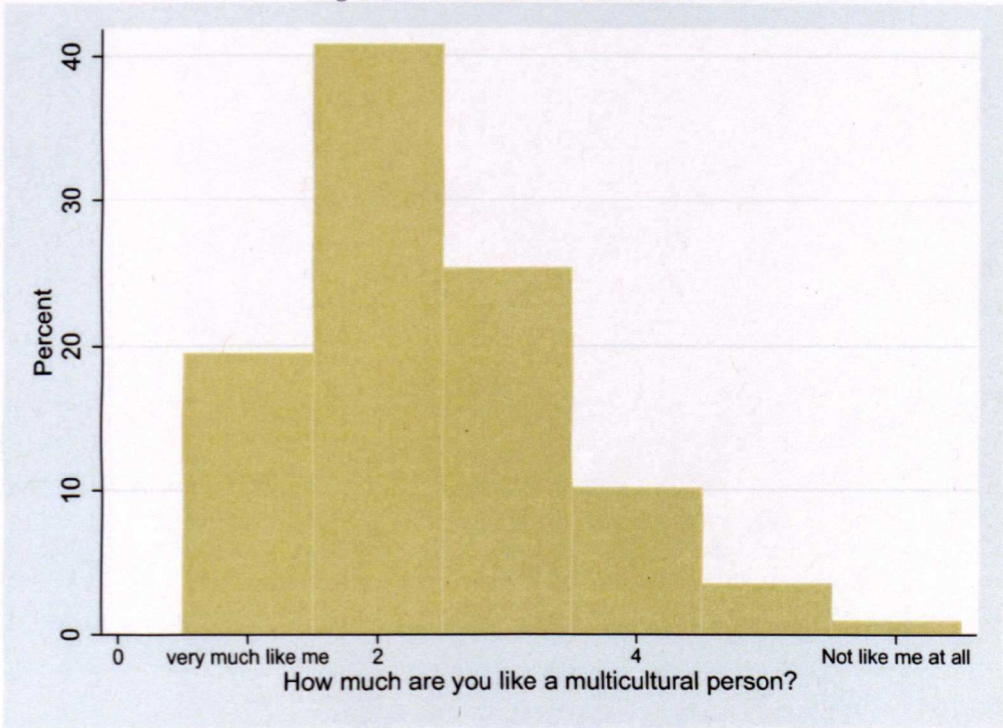
Figure A3.3: Distribution of Traditional

How much is a very traditional person like you?
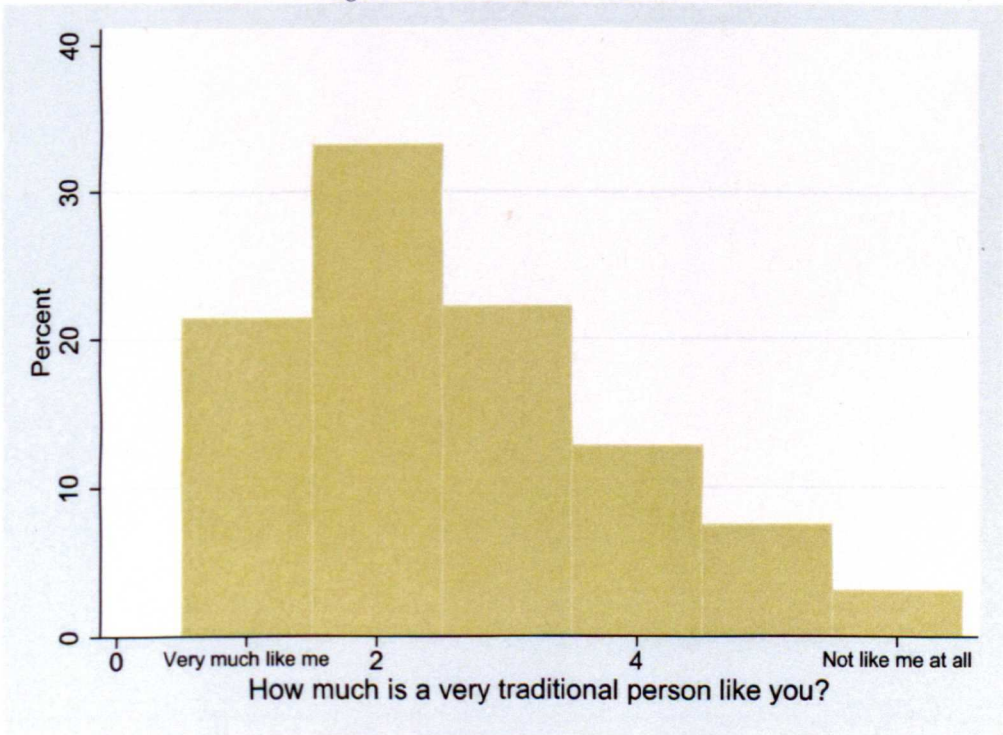
Figure A3.4: Distribution of Multicultural by Country

How much are you like a multicultural person?
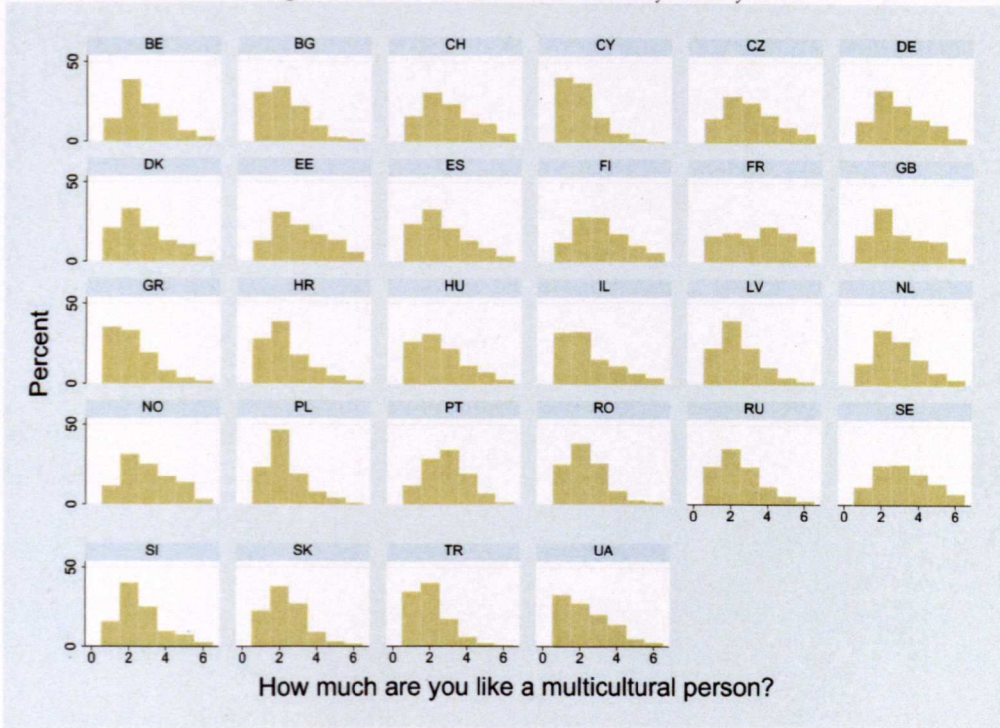
Figure A3.5: Distribution of Traditional by Country

How much is a very traditional person like you?
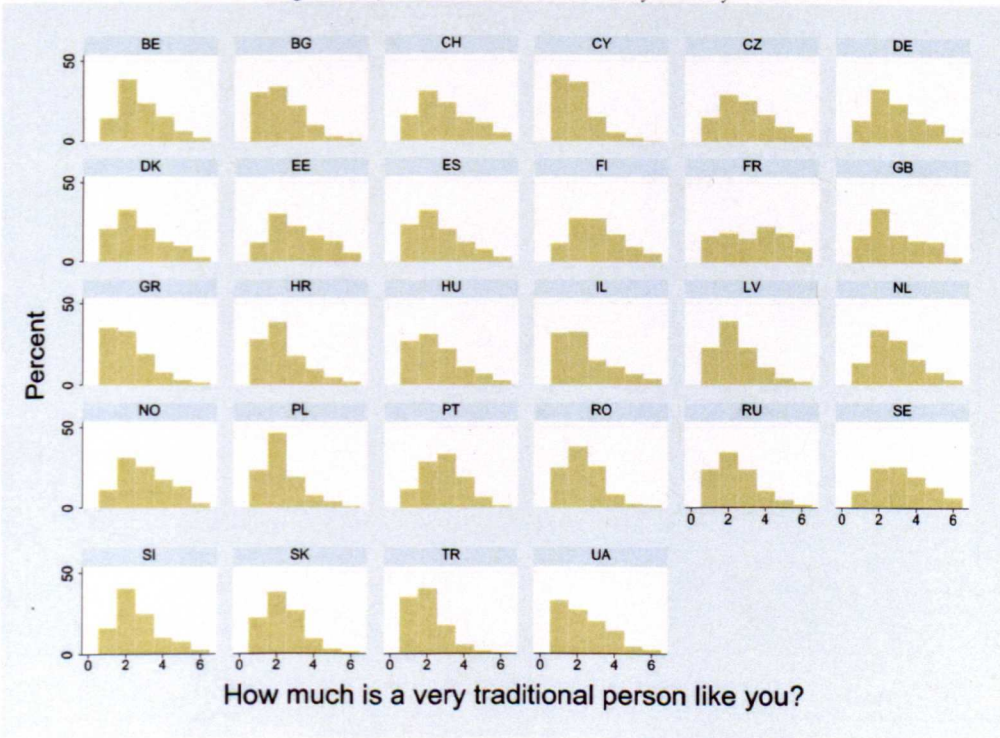
Table A3.3: Results from Sensitivity Analysis: Models 4, 5 and 6

	Model 4 Immigrants of the same race or ethnicity			Model 5 Immigrants of a different race or ethnicity			Model 6 Immigrants from poor countries Outside Europe		
Observations	33840			33826			33742		
Wald Test of Overall Significance	$\chi^2(120)$=7972.513			$\chi^2(120)$=8511.397			$\chi^2(120)$=8642.019		
P-value	0.000			0.000			0.000		
Likelihood Ratio Test of Independent Equations	$\chi^2(3)$=2483.7			$\chi^2(3)$=2395.9			$\chi^2(3)$=2435.3		
P-value	0.000			0.000			0.000		
Rho 21:32:31	-0.098**	0.571***	-0.122**	-0.064	0.568***	-0.089	-0.054	0.573***	-0.036
	(0.038)	(0.012)	(0.048)	(0.045)	(0.012)	(0.056)	(0.050)	(0.012)	(0.065)
Explanatory Variables									
Pro-immigration-economic	0.714***			0.720***			0.722***		
	(0.057)			(0.060)			(0.064)		
Pro-immigration-culture	0.625***			0.709***			0.573***		
	(0.078)			(0.087)			(0.099)		
Age	-0.003**	0.001	-0.003***	-0.004***	0.001	-0.003**	-0.005***	0.000	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Education Level	0.086***	0.146***	0.162***	0.085***	0.144***	0.159***	0.063***	0.146***	0.160***
	(0.012)	(0.010)	(0.010)	(0.013)	(0.010)	(0.010)	(0.013)	(0.010)	(0.010)
Citizen	-0.202**	-0.449***	-0.321***	-0.133*	-0.451***	-0.314***	-0.244***	-0.449***	-0.312***
	(0.079)	(0.070)	(0.073)	(0.078)	(0.070)	(0.073)	(0.073)	(0.070)	(0.073)
Female	0.030	-0.185***	-0.025	0.050*	-0.185***	-0.021	0.082***	-0.189***	-0.018
	(0.027)	(0.025)	(0.025)	(0.026)	(0.025)	(0.025)	(0.026)	(0.025)	(0.025)
Ethnic Minority	0.019	0.149**	0.129**	0.142**	0.159***	0.136**	0.155**	0.170***	0.129**
	(0.066)	(0.061)	(0.062)	(0.063)	(0.061)	(0.062)	(0.061)	(0.061)	(0.061)

89

Table A3.3: continued

Explanatory Variables	IMPP1	Pro-immigration-economic	Pro-immigration-culture	IMPP2	Pro-immigration-economic	Pro-immigration-culture	IMPP3	Pro-immigration-economic	Pro-immigration-culture
Unemployed	-0.178***	0.006	-0.123*	-0.190***	0.016	-0.101	-0.067	0.015	-0.100
	(0.068)	(0.069)	(0.063)	(0.068)	(0.069)	(0.064)	(0.064)	(0.069)	(0.064)
Retired	0.025	-0.137***	-0.066	-0.016	-0.136***	-0.070*	-0.034	-0.119***	-0.072*
	(0.045)	(0.043)	(0.042)	(0.044)	(0.043)	(0.042)	(0.045)	(0.043)	(0.042)
Right-wing Political Inclination	-0.027***	-0.035***	-0.056***	-0.048***	-0.036***	-0.057***	-0.056***	-0.036***	-0.058***
	(0.007)	(0.006)	(0.006)	(0.007)	(0.007)	(0.006)	(0.007)	(0.006)	(0.006)
Big City	-0.027	0.095***	0.071**	0.025	0.099***	0.086***	-0.005	0.094***	0.082**
	(0.035)	(0.032)	(0.033)	(0.034)	(0.032)	(0.033)	(0.034)	(0.032)	(0.033)
Current Immigration level	-0.019***	-0.026***	-0.037***	-0.023***	-0.026***	-0.039***	-0.008	-0.027***	-0.038***
	(0.006)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)
Instruments									
Economic Satisfaction		0.069***			0.069***			0.069***	
		(0.006)			(0.006)			(0.006)	
Job Security		0.014*			0.013			0.013	
		(0.008)			(0.008)			(0.008)	
Life Satisfaction		0.055***	0.054***		0.053***	0.053***		0.053***	0.053***
		(0.007)	(0.006)		(0.007)	(0.006)		(0.007)	(0.006)
Multicultural			-0.075***			-0.076***			-0.074***
			(0.011)			(0.012)			(0.012)
Traditional			0.041***			0.040***			0.040***
			(0.009)			(0.009)			(0.009)
Religious			0.013***			0.011***			0.013***
			(0.004)			(0.004)			(0.004)
Constant	0.635***	-0.613***	0.197	0.020	-0.580***	0.213*	0.208	-0.572***	0.220*
	(0.132)	(0.117)	(0.121)	(0.133)	(0.117)	(0.121)	(0.137)	(0.117)	(0.121)

Robust standard errors in brackets. * significance at 10%; ** significance at 5%; *** significance at 1%. All regressions include country dummies for all countries except Germany (largest sample); coefficients for countries not reported in this table.

Table A3.4: Results from Sensitivity Analysis: Models 7, 8 and 9

	Model 7 Immigrants of the same race or ethnicity			Model 8 Immigrants of a different race or ethnicity			Model 9 Immigrants from poor countries Outside Europe		
Observations	33840			33826			33742		
Wald Test of Overall Significance P-value	$\chi^2(120)$=6228.8 0.000			$\chi^2(120)$=6682.5 0.000			$\chi^2(120)$=6925.9 0.000		
Likelihood Ratio Test of Independent Equations P-value	$\chi^2(3)$= 0.000			$\chi^2(3)$=1871.3 0.000			$\chi^2(3)$=1911.6 0.000		
Rho 21:32:31	-0.123*** (0.038)	0.698*** (0.021)	-0.151*** (0.044)	-0.065 (0.055)	0.590*** (0.014)	-0.098 (0.066)	-0.029 (0.058)	0.597*** (0.013)	-0.050 (0.068)
Explanatory Variables									
Pro-immigration-economic	0.788*** (0.072)			0.669*** (0.080)			0.569*** (0.084)		
Pro-immigration-culture	0.712*** (0.073)			0.753*** (0.107)			0.738*** (0.107)		
Age	-0.003*** (0.001)	0.002 (0.001)	-0.003*** (0.001)	-0.004*** (0.001)	0.002 (0.001)	-0.003*** (0.001)	-0.005*** (0.001)	0.002 (0.001)	-0.003*** (0.001)
Education Level	0.113*** (0.011)	0.114*** (0.011)	0.141*** (0.010)	0.116*** (0.012)	0.113*** (0.011)	0.140*** (0.010)	0.091*** (0.012)	0.114*** (0.011)	0.138*** (0.010)
Citizen	-0.233*** (0.081)	-0.423*** (0.073)	-0.359*** (0.069)	-0.183** (0.077)	-0.429*** (0.072)	-0.363*** (0.070)	-0.280*** (0.075)	-0.429*** (0.073)	-0.351*** (0.069)
Female	0.024 (0.026)	-0.215*** (0.029)	-0.073*** (0.027)	0.037 (0.026)	-0.213*** (0.029)	-0.068** (0.027)	0.064** (0.026)	-0.221*** (0.029)	-0.061** (0.027)
Ethnic Minority	0.007 (0.065)	0.250*** (0.070)	0.251*** (0.065)	0.128** (0.064)	0.260*** (0.071)	0.253*** (0.065)	0.144** (0.063)	0.261*** (0.072)	0.241*** (0.065)

Table A3.4: continued

Explanatory Variables	IMPP1	Pro-immigration-economic	Pro-immigration-culture	IMPP2	Pro-immigration-economic	Pro-immigration-culture	IMPP3	Pro-immigration-economic	Pro-immigration-culture
Unemployed	-0.208***	0.023	-0.058	-0.222***	0.009	-0.045	-0.105	0.024	-0.025
	(0.066)	(0.080)	(0.069)	(0.067)	(0.080)	(0.072)	(0.064)	(0.080)	(0.072)
Retired	0.025	-0.220***	-0.086*	-0.017	-0.207***	-0.075	-0.030	-0.213***	-0.088*
	(0.044)	(0.051)	(0.047)	(0.043)	(0.052)	(0.048)	(0.044)	(0.052)	(0.047)
Right-wing Political Inclination	-0.022***	-0.053***	-0.073***	-0.043***	-0.055***	-0.074***	-0.050***	-0.055***	-0.075***
	(0.007)	(0.008)	(0.007)	(0.007)	(0.008)	(0.007)	(0.007)	(0.008)	(0.007)
Big City	-0.037	0.150***	0.122***	0.020	0.153***	0.125***	-0.009	0.148***	0.122***
	(0.035)	(0.037)	(0.034)	(0.034)	(0.037)	(0.035)	(0.033)	(0.037)	(0.035)
Current Immigration level	-0.032***	-0.005	-0.014**	-0.036***	-0.005	-0.014**	-0.021***	-0.006	-0.013**
	(0.006)	(0.007)	(0.006)	(0.005)	(0.007)	(0.006)	(0.006)	(0.007)	(0.006)
Instruments									
Economic Satisfaction		0.047***			0.047***			0.047***	
		(0.007)			(0.007)			(0.007)	
Job Security		0.012			0.012			0.012	
		(0.010)			(0.010)			(0.010)	
Life Satisfaction		0.055***	0.051***		0.055***	0.051***		0.056***	0.051***
		(0.008)	(0.007)		(0.008)	(0.007)		(0.008)	(0.007)
Multicultural			-0.143***			-0.144***			-0.141***
			(0.014)			(0.014)			(0.014)
Traditional			0.048***			0.049***			0.048***
			(0.010)			(0.010)			(0.010)
Religious			0.010**			0.009*			0.010**
			(0.005)			(0.005)			(0.005)
Constant	0.930***	-1.284***	-0.305**	0.408***	-1.257***	-0.292**	0.531***	-1.264***	-0.307**
	(0.120)	(0.132)	(0.128)	(0.123)	(0.133)	(0.127)	(0.121)	(0.133)	(0.128)

Robust standard errors in brackets. * significance at 10%; ** significance at 5%; *** significance at 1%. All regressions include country dummies for all countries except Germany (largest sample); coefficients for countries not reported in this table.

Table A3.5: Results from Sensitivity Analysis: Models 10, 11 and 12

	Model 10			Model 11			Model 12		
	Immigrants of the same race or ethnicity			Immigrants of a different race or ethnicity			Immigrants from poor countries Outside Europe		
Observations	23514			23514			23447		
Wald Test of Overall Significance	$\chi^2(120)=5046.3$			$\chi^2(120)=5411.3$			$\chi^2(120)=6053.4$		
P-value	0.000			0.000			0.000		
Likelihood Ratio Test of Independent Equations	$\chi^2(3)=5106.3$			$\chi^2(3)=5302$			$\chi^2(3)=5189.6$		
P-value	0.000			0.000			0.000		
Rho 21:32:31	-0.030 (0.043)	0.559*** (0.014)	0.014 (0.056)	0.011 (0.057)	0.562*** (0.014)	-0.015 (0.078)	-0.003 (0.049)	0.564*** (0.014)	-0.118** (0.057)
Explanatory Variables									
Pro-immigration-economic	0.648*** (0.069)			0.614*** (0.073)			0.533*** (0.076)		
Pro-immigration-culture	0.468*** (0.092)			0.636*** (0.122)			0.814*** (0.088)		
Age	-0.002 (0.001)	0.003** (0.001)	-0.002 (0.001)	-0.004*** (0.001)	0.003** (0.001)	-0.002 (0.001)	-0.004*** (0.001)	0.003** (0.001)	-0.002 (0.001)
Years of Education	0.041*** (0.005)	0.047*** (0.004)	0.053*** (0.004)	0.039*** (0.006)	0.047*** (0.004)	0.052*** (0.004)	0.025*** (0.005)	0.047*** (0.004)	0.052*** (0.004)
Born in Country	-0.168** (0.069)	-0.339*** (0.055)	-0.329*** (0.056)	-0.147** (0.064)	-0.329*** (0.056)	-0.339*** (0.056)	-0.181*** (0.062)	-0.341*** (0.056)	-0.329*** (0.057)
Female	0.044 (0.032)	-0.247*** (0.029)	-0.028 (0.029)	0.050 (0.030)	-0.249*** (0.029)	-0.028 (0.029)	0.066** (0.030)	-0.255*** (0.029)	-0.035 (0.029)
Ethnic Minority	-0.017 (0.078)	0.074 (0.076)	0.066 (0.074)	0.075 (0.074)	0.069 (0.076)	0.047 (0.076)	0.133* (0.072)	0.068 (0.077)	0.053 (0.074)
Unemployed	-0.147* (0.082)	0.148* (0.078)	-0.058 (0.072)	-0.188** (0.078)	0.143* (0.085)	-0.024 (0.075)	-0.036 (0.075)	0.148* (0.085)	-0.034 (0.074)

93

Table A3.5: continued

Explanatory Variables	IMPP1	Pro-immigration-economic	Pro-immigration-culture	IMPP2	Pro-immigration-economic	Pro-immigration-culture	IMPP3	Pro-immigration-economic	Pro-immigration-culture
Retired	0.054	-0.148***	-0.058	0.018	-0.157***	-0.052	0.003	-0.144***	-0.048
	(0.053)	(0.053)	(0.049)	(0.051)	(0.053)	(0.049)	(0.051)	(0.053)	(0.049)
Right-wing Political Inclination	-0.023***	-0.050***	-0.061***	-0.042***	-0.050***	-0.063***	-0.052***	-0.050***	-0.060***
Big City	(0.008)	(0.007)	(0.007)	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
	0.013	0.085**	0.108***	0.050	0.086**	0.114***	0.043	0.085**	0.110***
	(0.042)	(0.039)	(0.038)	(0.040)	(0.039)	(0.038)	(0.039)	(0.039)	(0.038)
Worked Abroad	-0.042	0.191***	-0.021	-0.066	0.194***	-0.015	-0.027	0.188***	-0.027
	(0.069)	(0.060)	(0.063)	(0.065)	(0.060)	(0.063)	(0.062)	(0.060)	(0.061)
Current Immigration level	-0.032***	-0.027***	-0.034***	-0.034***	-0.026***	-0.035***	-0.021***	-0.025***	-0.032***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Household Income	0.023***	0.017***	0.018***	0.016**	0.016**	0.019***	0.009	0.017***	0.020***
	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Instruments									
Economic Satisfaction		0.066***			0.066***			0.066***	
		(0.007)			(0.007)			(0.007)	
Job Security		0.006			0.007			0.006	
		(0.011)			(0.011)			(0.011)	
Life Satisfaction		0.057***	0.054***		0.057***	0.052***		0.057***	0.053***
		(0.008)	(0.007)		(0.008)	(0.007)		(0.008)	(0.007)
Multicultural			-0.128***			-0.124***			-0.127***
			(0.014)			(0.014)			(0.014)
Traditional			0.053***			0.053***			0.053***
			(0.011)			(0.011)			(0.011)
Religious			0.014***			0.015***			0.015***
			(0.005)			(0.005)			(0.005)

Robust standard errors in brackets. * significance at 10%; ** significance at 5%; *** significance at 1%. All regressions include country dummies for all countries except Germany (largest sample); coefficients for countries not reported in this table. The estimated constants are also not shown due to lack of space.

Table A3.6: Robustness: Categorical variables redefined as dummy variables

	Model 13	Model 14	Model 15
	Same Race	Different Race	Poor Countries
Observations	6786	6781	6759
Wald Test	1377.82	1556.51	1619.88
P-Value	0.000	0.000	0.000
	IMPP1	IMPP2	IMPP3
Pro-immig-economic	0.679***	0.705***	0.663***
	(0.152)	(0.143)	(0.150)
Pro-immig-culture	0.350	0.531*	0.659***
	(0.254)	(0.272)	(0.230)
Age	-0.002	-0.003	-0.002
	(0.003)	(0.002)	(0.002)
Education Level			
Not completed primary education (Reference group)			
Primary or first stage of basic	-0.027	0.035	-0.170
	(0.265)	(0.277)	(0.284)
Lower secondary or second stage of basic	0.162	0.162	0.043
	(0.256)	(0.267)	(0.276)
Upper secondary	0.351	0.373	0.062
	(0.257)	(0.268)	(0.277)
Post secondary, non-tertiary	0.437	0.392	0.154
	(0.282)	(0.291)	(0.297)
First stage of tertiary	0.559**	0.601**	0.287
	(0.272)	(0.286)	(0.294)
Second stage of tertiary	0.978**	1.270**	0.089
	(0.491)	(0.514)	(0.421)
Citizen	-0.418***	-0.236*	-0.248*
	(0.131)	(0.131)	(0.132)
Female	0.056	0.010	0.101*
	(0.063)	(0.062)	(0.060)
Ethnic Minority	0.062	0.060	0.271**
	(0.124)	(0.122)	(0.110)
Unemplored	-0.239***	-0.253***	-0.065
	(0.080)	(0.081)	(0.076)
Retired	0.055	0.123	-0.016
	(0.145)	(0.141)	(0.143)
Rightwing (Binary)	-0.150**	-0.190***	-0.196***
	(0.074)	(0.074)	(0.073)
Big City	-0.022	0.020	-0.023
	(0.076)	(0.074)	(0.070)
Curent Immig level (Binary)	-0.132*	-0.186***	-0.131**
	(0.071)	(0.068)	(0.065)
Constant	0.783**	-0.032	-0.007
	(0.337)	(0.333)	(0.348)

Dependent Variable: Pro-Immigration Economic	Model 13	Model 14	Model 15
Age	0.003	0.003	0.003
	(0.003)	(0.003)	(0.003)
Education Level			
Not completed primary education (Reference group)			
Primary or first stage of basic	-0.164	-0.146	-0.119
	(0.274)	(0.266)	(0.274)
Lower secondary or second stage of basi	0.144	0.177	0.185
	(0.264)	(0.254)	(0.263)
Upper secondary	0.058	0.089	0.096
	(0.261)	(0.251)	(0.259)
Post secondary, non-tertiary	0.148	0.169	0.169
	(0.285)	(0.276)	(0.283)
First stage of tertiary	0.550**	0.584**	0.602**
	(0.263)	(0.254)	(0.262)
Second stage of tertiary	0.992**	1.035**	1.049**
	(0.456)	(0.465)	(0.465)
Citizen	-0.487***	-0.490***	-0.497***
	(0.121)	(0.122)	(0.121)
Female	-0.277***	-0.278***	-0.293***
	(0.061)	(0.060)	(0.060)
Ethnic Minority	0.252**	0.259**	0.249**
	(0.107)	(0.107)	(0.106)
Unemplored	0.057	0.050	0.051
	(0.086)	(0.085)	(0.086)
Retired	-0.235	-0.223	-0.198
	(0.168)	(0.167)	(0.169)
Rightwing (Binary)	-0.079	-0.091	-0.109
	(0.073)	(0.074)	(0.075)
Big City	0.165**	0.180**	0.173**
	(0.071)	(0.070)	(0.070)
Curent Immig level (Binary)	-0.132*	-0.130*	-0.135**
	(0.068)	(0.067)	(0.067)
Economic Satisfaction			
Extreemly dissatisfied			
Satisfied	0.129**	0.126**	0.131**
	(0.059)	(0.059)	(0.061)
Extreemly Satisfied	0.295***	0.286***	0.286***
	(0.098)	(0.099)	(0.100)
Life Satisfaction			
Extreemly dissatisfied			
Satisfied	0.087	0.082	0.069
	(0.092)	(0.090)	(0.092)
Extreemly Satisfied	0.369***	0.374***	0.357***
	(0.093)	(0.093)	(0.095)
Constant	-0.629*	-0.670**	-0.635*
	(0.340)	(0.333)	(0.339)

Dependent Variable: Pro-Immigration Culture	Model 13	Model 14	Model 15
Age	-0.002	-0.003	-0.002
	(0.002)	(0.002)	(0.002)
Education Level			
Not completed primary education (Reference group)			
Primary or first stage of basic	0.145	0.195	0.204
	(0.246)	(0.240)	(0.247)
Lower secondary or second stage of basic	0.441*	0.482**	0.477**
	(0.235)	(0.230)	(0.237)
Upper secondary	0.533**	0.554**	0.545**
	(0.233)	(0.229)	(0.235)
Post secondary, non-tertiary	0.620**	0.634**	0.621**
	(0.259)	(0.252)	(0.260)
First stage of tertiary	0.966***	1.003***	0.986***
	(0.236)	(0.232)	(0.239)
Second stage of tertiary	0.687	0.757*	0.880**
	(0.424)	(0.386)	(0.410)
Citizen	-0.140	-0.136	-0.159
	(0.123)	(0.123)	(0.122)
Female	-0.111*	-0.109*	-0.143**
	(0.059)	(0.058)	(0.058)
Ethnic Minority	0.238**	0.256**	0.227**
	(0.108)	(0.106)	(0.105)
Unemplored	-0.008	0.018	-0.005
	(0.081)	(0.081)	(0.081)
Retired	-0.341**	-0.259*	-0.287*
	(0.162)	(0.156)	(0.157)
Rightwing (Binary)	-0.125*	-0.166**	-0.147**
	(0.073)	(0.072)	(0.074)
Big City	0.154**	0.163**	0.150**
	(0.069)	(0.069)	(0.069)
Curent Immig level (Binary)	-0.206***	-0.196***	-0.191***
	(0.063)	(0.063)	(0.063)
Life Satisfaction			
Extreemly dissatisfied			
Satisfied	0.084	0.060	0.070
	(0.086)	(0.087)	(0.087)
Extreemly Satisfied	0.347***	0.319***	0.348***
	(0.086)	(0.086)	(0.085)
Multicultural (Binary)	-0.057	-0.174	-0.114
	(0.136)	(0.140)	(0.128)
Traditional (Binary)	0.050	0.014	0.041
	(0.066)	(0.065)	(0.065)
Religious (Binary)	0.085	0.106	0.099
	(0.067)	(0.065)	(0.065)
Constant	-0.784**	-0.779**	-0.750**
	(0.310)	(0.305)	(0.309)

Robust standard errors in brackets. * significance at 10%; ** significance at 5%; *** significance at 1%. All regressions include country dummies for all countries except Germany (largest sample); the coefficients for countries are not reported in this table.

The Welfare State Channel and Attitudes towards Immigration

4.1 Introduction

Over the last two decades immigration policies in nearly all the major migrant receiving countries have gradually moved towards a preference for (highly) skilled immigrants and an increased restriction for unskilled (low skilled) immigrants. A report by the UN indicated that between 1996 and 2005, the proportion of governments wishing to reduce international migration declined from a peak of 40 to 22 percent as a result of governments reacting to the challenges and opportunities from international migration. The report points out that the governments of many migrant-receiving countries have been actively adopting or amending laws and regulations so as to facilitate the inflow of the types of migrants they need, especially skilled migrants and to prevent the inflow of unwanted types of migrants.

This shift towards immigration policies that favour skilled immigrants is driven by a growing concern about the issue of skills shortage - "a situation where there is a genuine shortage in the accessible labour market of the type of skill being sought and which leads to a difficulty in recruitment" (NSTF, 1998). Dumont (2003) points out that by the late 1990s employers in most OECD countries had began to report labour shortages in highly skilled occupations as well as for semi- and low-skilled jobs, although both employment and labour market participation rates were on the increase. A European Commission report, Employment in Europe 2001, Recent Trends and Prospects, established (through regular harmonised labour marker survey for employers) that there were labour shortages in all sectors in seven countries across the EU.

However, for aging economies like those of Western Europe, inflows of young workers (irrespective of their skill endowments) from third countries can possibly play an important role in improving the sustainability of social security systems that rely on intergenerational transfers. The OECD International Migration Outlook 2008, reports that current birth rates in nearly all OECD countries have fallen below replacement levels, and international migration is the main driver of population growth in most OECD countries. For countries like Japan, Germany and Hungary even migration was insufficient to offset population decline in 2007. At the same time, most OECD countries are entering a period where the baby-boomer cohorts are retiring and the youth cohorts are getting smaller. In addition, life expectancy has improved significantly allowing people to live longer in most OECD countries. As a result of this, government spending on state pensions and other provisions for old people (including health, winter fuel payment, etc) takes a significant proportion of the fiscal budget, while the revenue base for future social security is dwindling.

Castles (2004) points out that the strategic use of immigrants is not a new pheno- menon. The French Nationality Code of 1889 was explicitly designed, in a period of demographic decline, to obtain soldiers for future conflicts with Germany. Ho- wever, in current democratic societies, immigration policies are outcomes of native individual attitudes towards immigrants. Individual attitudes towards immigrants may influence immigration policies, either through the voting system (Scholten and Thum, 1996; Haupt and Perters, 1998; Krieger, 2004; Fachini and Mayda, 2008 and 2009; Razin, et al., 2009) or through a process of lobbying from various interest groups within the economy (Hatton and Williamson, 2004; Facchini and Willmann, 2005).

This raises the question of what determines individual attitudes towards immigration. Within the framework of economic self-interest, the determinants of individual attitudes towards immigration can be analysed under two main economic channels - the labour market and the welfare state channels. Immigration can have positive or negative impacts on the labour market outcomes of individuals such as wages and unemployment, labour market competitiveness and job security. It can also have positive or negative impacts on the individual's welfare state outcomes such as taxes and social benefits (pensions and unemployed benefit claims). Whether these impacts are positive or negative to a native individual voter may well depend on their personal attributes and characteristics such as skill level, age (age-group) employment status etc. Thus the individual's perception of the effects of immigration on their labour market and welfare state outcomes may be the motivation for their attitudes towards immigrants, ceteris paribus. Put differently, the subjective views of individuals regarding the economic effects of immigrants may be important determinants of their attitudes towards immigration. Consequently, various groups of individuals within the population who share similar characteristics may be expected to exhibit similar

attitudes towards immigration.

Within this context, this chapter has two aims. The first objective is to empirically examine the extent to which attitudes towards immigration are determined by individual concerns about the effect of immigrants on the welfare state; where the potential immigrants are perceived as predominantly low skilled. This focuses on assessing the level of dependence between perceived welfare state effects of immigrants in general and individual attitudes toward (predominantly unskilled) immigration. The second objective of the chapter is to empirically evaluate the individual characteristics that determine their subjective views regarding the effect of immigrants on the welfare state and consequently their attitudes towards immigration. To achieve this, the chapter relies on established and theoretically justifiable predictions to analyse the effects of the individual age (age-groups) and skill levels on their attitudes towards immigration when social security considerations are taken into account.

To help answer the research questions that emanate from the objectives of the study, three empirical hypotheses are tested using the data from the 2008/09 edition of the European Social Survey. The first hypothesis is that, individual attitudes towards (predominantly unskilled) immigration are significantly driven by the individual subjective views regarding the effects of immigrants on the welfare state. In other words, welfare state considerations are important determinants of individual attitudes towards immigration.

The second hypothesis is that, old and retired individuals have a more anti-immigration attitude than the young and middle aged individuals due to social security considerations. This hypothesis is mainly the outcome of a model by Scholten and Thum (1996), which indicates that in a welfare state economy characterised by a pay-as-you-go social security system where pension benefit rates (replacement rates) are fixed[1] (based on average wages) and where the contribution rate (taxes) vary according to the dependency ratio, an increase in the working population due to immigration has a negative effect on pension benefits received by the retired generation. Hence with the motivation of economic self-interest, old and retired individuals are expected to have a preference for a more restrictive immigration policy than the young and middle aged, who by virtue of immigration receive net gains (from the combination of reduced taxes and wages).

The third hypothesis is that when social security concerns are taken into consideration, skilled individuals have a preference for more immigration than unskilled individuals especially when the potential immigrants are perceived as predominantly unskilled.

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[1] The first (public) pillar of most countries' pension systems is a pay-as-you-go system of the defined-benefit type (Werding, 2003), in which either the pension benefit or the replacement rate is fixed by law.

This hypothesis is based on Kreiger (2004) which models the preferences of skilled and unskilled individuals in a welfare state economy characterised by a pay-as-you-go social security system with defined benefits (pension rates) and varying contributions (taxes). Kreiger (2004) analytically shows that, although both skilled and unskilled individuals gain from the inflow of young unskilled immigrants due to reduced tax burdens, skilled individuals gain more since they do not suffer the additional (unskilled) wage reduction associated with unskilled immigration.

The study in this chapter contributes to the growing literature in the area of welfare state determinants of individual attitudes towards immigration in four ways. The first contribution is that the study focuses on attitudes towards immigrants who are arguably perceived as predominantly unskilled. This brings more precise evidence to the broad literature.

The second contribution is that this study applies a more direct measure of subjective individual views regarding the effects of immigrants on the welfare state. The availability of a specific set of questions in the European Social Survey provides an opportunity to adopt a more direct approach than in previous studies on the issue. The third contribution to the literature is methodological. The study employs a bivariate ordered probit empirical method which allows the subjective views of individuals to be treated as an endogenous determinant of attitudes towards immigration. This suggests that attitudes towards immigration are simultaneously determined along with the subjective views of individuals regarding the welfare state effects of immigrants. The final main contribution of this study is that it provides an empirical examination of the issue of individual attitudes towards immigration where social security concerns are taken into consideration. This novel contribution provides more evidence that can help address the political challenges of using immigration policy as one of the tools in tackling the impending public pension crises that are faced by most European countries due to ageing populations.

The rest of the chapter is organised as follows. The next section (4.2) provides some background to the issue of immigration and the welfare state. It provides summary descriptions of the types of welfare state systems in Europe, and highlights the challenges these systems face with immigration both as one of the challenges as well as a potential means of addressing some of the challenges. Section 4.3 provides a review of relevant theoretical and empirical studies on the welfare state determinants of individual attitudes towards immigration. Section 4.4 presents a short outline of the models by Scholten and Thum (1996), Haupt and Peters (1998) and Kreiger (2004) to give the empirical analyses an inductive structure. Section 4.5 describes the data and the estimation method while, 4.6 discus the results and their sensitivity. The key findings and shortcomings are summarised in section 4.7.

4.2 The Welfare State and Immigration

The major migrant-receiving countries are often characterised by large welfare states (Boeri, Hanson and McCormick, 2002), in which the public sector redistributes a substantial fraction of national income across individuals. A welfare state is a concept of government where the state plays a key role in the protection and promotion of the economic and social well-being of its citizens through government financed income transfers designed to effect a distribution of income considered desirable. According to Baldwin-Edwards (2002), social investment, income redistribution and horizontal redistribution (managing life time incomes) are the three primary functions performed by the modern welfare state although these are represented differently in different countries. This covers all the social security programmes usually established by statute to insure individuals against interruption or loss of earning power and for certain special expenditures arising from marriage, birth or death including allowances to families for support of children. The welfare state is characterised by a system of publicly provided or guaranteed social insurance, transfer payments and service-programmes which include pension plans, unemployment insurance, health insurance, child benefits health care, housing and education. It developed as the social policy arm of the Keynesian Welfare State (Bommes and Geddes, 2000). The premise behind this system is that it is the responsibility of the state to provide its citizens with basic security against certain life-risks. Moreover, the premise is that it is the role of the state to guarantee aid to its citizen in certain vulnerable phases of the life cycle.

Welfare systems are explicitly tied to the evolution of the nation state and the conceptualisation of national citizenship. However, the existence of redistributive social insurance programs is likely to have an attraction for some unskilled immigrants, who may be interested not only in new job opportunities, but also in the benefits that come in the form of subsidized healthcare, unemployment compensation, or provisions concerning dependants. Boeri, Hanson and McCormick (2002) points out that, the probability of immigrant households to depend on social assistance and related welfare programmes is determined by the human capital and other socio-economic characteristics of the immigrants. Nevertheless, the evidence shows that to some extent, differences across European countries with respect to the composition of the immigrant population and their welfare dependency correlates with the generosity of the welfare state (Boeri, Hanson and McCormick, 2002).

While immigrants with higher welfare dependency are likely to represent a net burden for the public finances of the host countries, in general, immigration can have the opposite effect on the welfare state. For example, when migrants are skilled or when birth rates are low and the working population is dwindling due to an ageing

population. Boeri, Hanson and McCormick (2002) review some of the evidence on the effects that immigrants have on the welfare state in the host economy in European countries. They observe that in all EU countries, immigrants are less likely (than natives) to depend on old-age and health benefits because they are younger. They conclude that, in general, immigrants are less likely in depend on the welfare state, with the exception of Germany, Denmark, the Netherlands and France where immigrants are more likely than natives to be on unemployment benefits and welfare assistance because of their reduced earning capacity.

Regardless of whether immigration represents a net cost or benefit for public finances, the presence of immigrants leads to some adjustments in the social welfare system (taxes and social benefits) that affects different subgroups of the population differently. This effect of immigration on the individuals' social welfare outcomes, be it perceived or real, may affect their immigration policy preferences or attitudes toward immigration.

Given that skilled immigrants both fill vacancies in skill-shortage occupations and are less likely to depend on social welfare benefits, one would expect a clear majority support for skilled immigration. However, unskilled immigration policies are more likely to be met with resistance from various subgroups of the population (Massey and Taylor, 2004). Section 4.4 takes an *a priori* look at how voters in democratic societies will vote on unskilled immigration, when welfare state concerns are taken into consideration. Before the model on individual preferences for unskilled immigration, this section gives a brief background of why there may be a need for unskilled immigration in Europe. The basic argument is that, as nearly all European countries approach the predicted demographic crises of having relatively small populations of working age to support the many pensioners, immigration of young workers (irrespective of the skill level) seems an ideal solution. This argument assumes that immigrants are always available and willing to migrate. However, skilled immigrants are not always available in sufficient numbers and so countries compete for them. Thus, for the argument to be plausible it may be useful to think of immigrants as predominantly unskilled since this group of young workers are always available and willing to migrate.

In order to highlight the link between immigration, on one hand, and the sustainability of pension systems, on the other hand, the next subsections briefly discusses the pension systems, some basic information on welfare state and some stylised facts on ageing societies.

4.2.1 Some Basic Facts on European Demography and Welfare States

Eurostat Statistics in Focus (2008a) reports that in 2006 about 3.5 million people settled in a new country of residence in the EU-27, representing nearly a 25 percent increase since 2002. It reports that the annual average increase was more than 100,000 people during the period, although since 2005 the increase has slowed and even turned into a decline. The biggest rise in immigration was in Ireland and Spain but with the majority (more than half of all immigrants) of immigrants settling in the 'big' EU member states such as Spain, Germany and UK. This is in spite of the fact that several countries including Germany, Austria and the Netherlands saw a decline in immigration over the whole or part of the period, with total immigration to these three countries falling by 14%, 17% and 11%, respectively, compared to the 2002 figures. The report also shows that about half of all immigrants were younger than 29 years old.

The statistics indicates that international migration seems to be the main driver of population growth in Europe. The 2007 edition of Eurostat Statistics in Focus, reports that migration contributed 76 percent to total population increase of 2.9 million in Europe as a whole. The report also confirms that population increase at EU-27 level was also mostly due to migration with natural change (live births minus deaths) accounting for only 20 percent of the total population change in the EU-27 in 2007 (with the exception of France, the Netherlands and the UK where positive natural change is still the main driver of population growth). At the same time Europe seems to be experiencing a demographic transition with low fertility rate (below replacement levels), high life expectancy rates and low mortality rates (Eurostat, 2007). Table 4.1 indicates that Europe has the highest aging population in the world with 21.6 percent of the European population aged over 60 compared to the world average of 10.8 percent. The figures drawn from World Populations Ageing[2] 2009 indicate that Europe has the highest old-age dependency ratio (23.6) in the world. This being coupled with the low fertility ratios; Eurostats (2008b) projections show the population of the EU27 rising gradually from 495.4 million in 2008, reaching 520.7 million in 2035 and thereafter gradually declining to reach 505.7 million by January 2060 in spite of immigration. The median age is projected to rise from 40.4 years in 2008 to 47.9 years in 2060 and number of people aged 80 years or over is projected to almost triple from 21.8 million in 2008 to 61.4 million in 2060.

The old age dependency ratio in the EU27 area is expected to increase substantially from its current levels of 25.4 percent to 53.5 percent in 2060; meaning that there will only be 2 persons of working age (15-64 years old) for every person aged 65

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[2]UN Department of Economic and Social Affairs, Population Division, Publication ref: ESA/P/WP/212, December 2009

Table 4.1: Percentages of old age population and Dependecy ratios:world Major areas and regions 2009

Major Areas or Region	Pop. aged over 60 (%)	Pop. aged over 65 (%)	Pop. aged over 80 (%)	Life exp.	Old-age dep. ratios
World	10.8	7.5	1.5	68	11.5
Africa	5.3	3.4	0.4	54	6.1
Asia	9.7	6.6	1.1	69	9.8
Europe	21.6	16.2	4.1	75	23.6
Latin America and the Caribbean	9.8	6.8	1.4	73	10.4
North America	18	12.9	3.8	79	19.2
Oceania	15.1	10.6	2.8	76	16.3

Source: World Population Ageing 2009

years (*ceteris paribus*) or over in 2060 (Eurostat 2008b). These projections indicate that unless there are substantial reforms in European social security programmes (especially pension systems) tax burdens and social security contribution rates will most likely increase considerably over the period up to 2060. Krieger (2005) argues that the funding of many public pay-as-you-go systems has come under threat as a result of these demographic trends. He proposes that an immigration policy that allows predominantly young workers to settle in the host country can be seen as a simple solution to the problem. However, he recognises that immigration might be a politically difficult solution due to the sheer size of the inflows needed to maintain the dependency ratios at reasonable levels. The analysis in this chapter therefore attempts to investigate if these demographic trends have any effect on individual attitudes towards immigration through their effect on the social security programmes. Table A4.1 in the appendix presents detailed 2008 demographic and social security related statistics for the European countries in the dataset used for the empirical analysis.

4.2.2 Overview of Social Security Systems in Europe

The welfare states in Europe provides protection to citizens through Social Security benefits which may be either cash benefits to replace lost income (income maintenance programmes) or benefits in kind which provide or finance the provision of direct services. Cash benefits under the income-maintenance programmes are provided through three broad approaches namely: employment-related, universal, and means-tested systems.

Under both the employment-related and the universal approaches, the insured dependents and survivors can claim benefits as a matter of right. Under means-

tested approaches, benefits are based on a comparison of a person's income or resources against a standard measure. Some countries also provide other types of coverage mainly delivered through financial service providers - mandatory individual accounts, mandatory occupational pensions, and mandatory private insurance[3].

Social security benefits may be summarised under the following five groups: old-age, disability and survivors; sickness and maternity; work injury; unemployment; and family allowance. However, this subsection will only focus on old-age programmes to motivate the analyses in the chapter.

The pension systems in Europe and most industrialised countries can be viewed in three dimensions. The first dimension distinguishes fully funded (FF) pension systems from pay-as-you-go (PAYG) systems. The pay-as-you-go system is based on inter-generational redistribution, where the entire contributions of the working generation are immediately transferred to the retirees. On the other hand the fully funded system is not characterised by any form of redistribution (be it inter or intra - generational), instead, it depends on the capital market return or the market interest rate as its internal rate of return. The second dimension of the pension systems compares the degree of redistribution of the pension system with the degree of actuarial fairness of the system. Primarily, this distinguishes systems that follow the Bismarckian tradition from those that follow the Beveridgean tradition. The latter is concerned with fair redistribution and intended to guarantee a certain minimum level of retirement income; hence follows universal coverage with a weak link between contributions and benefits. On the other hand the Bismarckian tradition aims at actuarial fairness with pension benefits strongly linked to contributions. It requires compulsory membership (employment related) and minimum years of contribution necessary for benefit entitlements. The third dimension of the pension systems distinguishes between systems that are characterised by defined-benefits (DB) and those that are characterised by defined-contributions (DC). Defined-benefit means that the rate of pension benefit is fixed irrespective of the number of retired persons, implying that the rate of contribution or tax rate varies with the old age dependency ratio. On the other hand defined-contribution operates with a fixed contribution rate and a pension benefit rate that varies with the number of retired claimants (Werding, 2003; Thode, 2003; Krieger, 2005). As shown in figure 2.1 below, all the countries in Europe (except Italy and Sweden) have pension systems that are characterised by defined-benefits. Italy and Sweden adopted defined-contribution pension schemes through fundamental pension reforms in 1995 and 1998 respectively.

Thode (2003) reports that European public pension programmes are usually composed

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[3]More details are available from "Social Security Programs Throughout the World: Europe, 2008"

CHARACTERISTICS OF NATIONAL PENSION SCHEMES
(FIRST, SECOND AND THIRD PILLAR, 2002)

flat-rate benefits ——— degree of actuarial fairness ——→ actuarially fair pensions

pay-as-you-go pensions

GR   F   I
P E B
A LUX   D

○ DB
○ DC
● mixed

SF   CH

degree of funding

IR L   NL GB DK '02   S

US

fully funded pensions
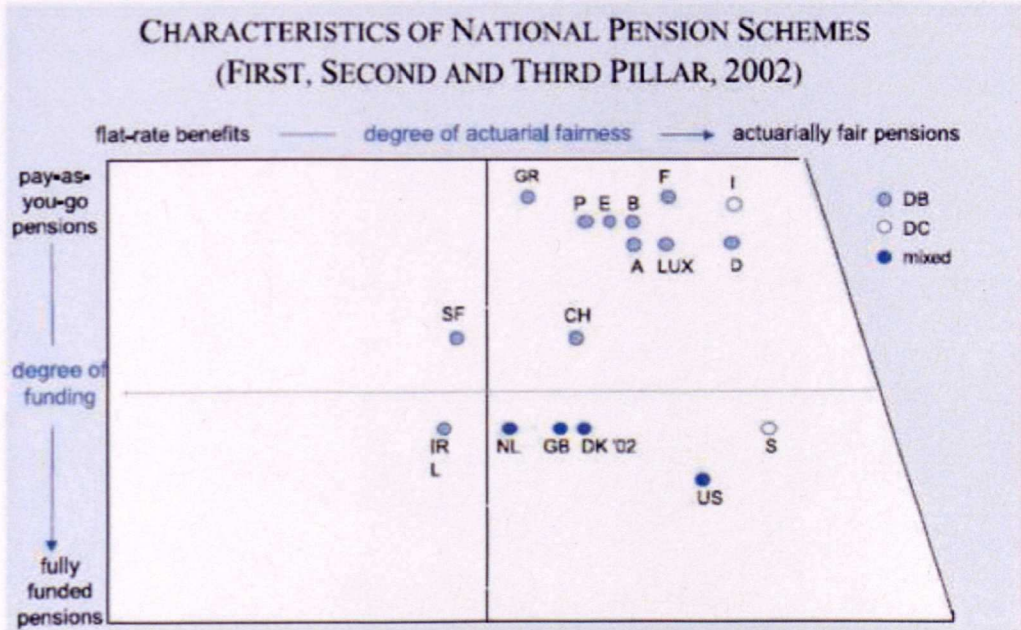
Notes: DB = defined-benefits system, DC= defined-contribution system; A=Austria,B= Belgium, CH = Switzerland, D= Germany, DK= Denmark, E= Spain, F= France, GB=UK, GR= Greece, I= Italy, IRL= Ireland, LUX= Luxembourg, NL= Netherlands, S= Sweden, SF= Finland, US= United States.
Source: Werding (2003)

of three pillars. The first pillar commonly follows a pay-as-you-go principle consisting of a pension scheme that is financed by taxes, contributions or a combination of both with the current working populations paying the pensions of the retired. The second pillar comprises occupational pension schemes which may be mandatory or optional depending on the country. Employers and employees contribute to funds that are organized either within the firm or externally through financial service companies. Lastly, the third pillar comprises all voluntary individual savings plans specifically aimed at old-age provision. Life-insurance and personal stock-market investments with annuitized returns are popular instruments in this pillar.

Historically, the countries that primarily follow the Bismarckian tradition can be found in Austria, Belgium, Germany, Greece, Italy, Luxembourg, Portugal and Spain while public pensions in Ireland, the Netherlands and the UK are built on the Beveridgean tradition. Denmark, Finland France and Switzerland have pension systems which in one way or another follow combined elements of both traditions (Werding, 2003). In Figure 2.1 below the horizontal axis from left to right signifies the degree of actuarial fairness; where the extreme left (flat rate benefit) indicates the complete inter-generational redistributive fairness. The figure shows that all the countries are far away from redistribute fairness and are clustered near actuarial fairness; this is so even for the countries that primarily follow the Beveridgian tradition.

From the above descriptions of pension systems in Europe, it can be summarised that in general, European public pension systems are largely characterised by a pay-as-you-go principle of finance (at least in the first pillar) and by defined-benefits schemes as opposed to defined-contribution schemes.

Due to the prevalence of the pay-as-you-go principle of funding across Europe, the issue of ageing populations along with low birth rates presents some challenges and pressures for pension reforms. Immigration has been suggested as (at least) a temporary solution to the problem of aging populations and low birth rates so as to help sustain the pension systems during a transition to fully funded system through reforms (Scholten and Thum, 1996; Haupt and Peters, 1998; Razin and Sadka, 1998; Krieger, 2004 and 2005; Kemnitz, 2005; Razin and Sand, 2007). The next section provides a summary review of the relevant literature to which this study is related.

4.3   Literature Review

In a very broad sense, this study, relates to the substantial body of literature that attempts to evaluate the economic impact of immigrants in the host economy. This literature typically focuses on the impact of immigrants on the labour market and welfare state. The overall message from the literature that focuses on the labour market impacts is that immigration depresses the wages of competing labour in the host country in the short run. This follows from the fact that the inflow of immigrants increases the size (relative to other factors of production) and alters the (skill) composition of the labour force in the host country. Theoretically, this may lead to higher unemployment rates or higher labour market competition as the economy tries to employ the new labour in the short run. This means that the inflow of skilled migrants depresses the wages of native skilled workers, while the inflow of unskilled immigrants depresses the wages of native unskilled workers (Grossman, 1982; Borjas, 1985; 1995; 1999; 2003; Card 2005). However, the empirical evidence in support of this intuitively appealing argument is mixed and not conclusive.

Empirical studies using US and Canadian labour market data suggest that immigration depresses wages for competing workers to some extent. Yet, the estimated wage impact of immigration depends in part on whether one treats the labour market as national or local in scope. Borjas (2003) defined the labour market at the national level according to a worker's education and experience and finds that immigration slowed down (depressed) the wages of low skilled US workers. Aydemir and Borjas (2007) applied a similar methodology and finds comparable evidence of the wage effects of migration for Canada where immigration slowed down the growth of skilled workers

wages. The problem with their approach is that the effect of immigration on wages cannot be disentangled from other shocks, such as technological changes that might affect low skilled workers' wages.

Studies that define the labour market at the sub-national level, on the other hand, tend to find that immigration has little or no impact on wages. These include Borjas (1999) for the US; Addison and Worswick (2002) for Australia; Pischke and Velling (1997) for Germany; Zorlu and Hartog (2005) for the Netherlands and Norway (2005); Carrasco, Jimeno, and Ortega (2008) for Spain; and Dustmann, Fabri, and Preston (2005) in the UK. On the contrary a UK study by Dustmann, Frattini and Preston (2007) concludes that immigration has a positive absolute wage effect for natives, but lowers wages of those workers employed in the lowest paid jobs.

Apart from labour market competition issues, the literature on the effects of immigration also examines the effect of immigrants on public finances and the welfare state. Immigrants pay taxes, receives transfer payments and make use of public serves. The main message from this branch of the literature is that, while skilled immigrants generally constitute a net contribution to public finances, low skilled immigrants generally constitute a net burden. Boeri, Hanson and McCormick (2002) survey a number of studies and conclude that, in all EU countries, immigrants are less likely (than natives) to depend on old-age and health benefits because they are younger. They conclude that, in general, immigrants are less likely to depend on the welfare state. However, in Germany, Denmark, the Netherlands and France, immigrants are more likely than natives to be on unemployment benefits and welfare assistance because of their reduced earning capacity. In the UK, Greece, Spain and Portugal, the contrary is observed. Card, Dustmann and Preston (2005) ague that net effect of immigrants on public finances depends on the demographic and economic characteristics of the immigrants and on the nature of the tax and benefit system in a particular host country.

One issue in the area of economic impacts of immigration that has received very little attention in the literature is the effect of immigrants on the non-labour and non-welfare state income of natives. This includes the effect of immigrants on commodity and housing market prices. However, irrespective of the overall impact of immigrants on the economy through the labour, welfare state and other socio-economic impacts, the presence of immigrants inevitably leads to some adjustments in the economy that affects the individual residents or natives in different ways depending on a number of factors which include their personal attributes. Based on the simple hypothesis of economic self-interest, it can be argued that the effect of immigration on the native individual is the main motivation for their attitudes towards immigration. This leads to the literature on the determinants of individual attitudes towards immigration, to which this study is specifically related.

A growing literature investigates both the economic and non-economic determinants of individual attitudes towards immigration. The early contributions have mainly focused on individual countries like the United States (Citrin, Green, Muste and Wong, 1997; Espenshade and Hempstead 1996, Kessler 2001, Scheve and Slaughter 2001) and the United Kingdom (Dustmann and Preston 2001, 2004, 2007). The overall message from these studies is that economic concerns strongly shape individual attitudes towards immigration although non-economic concerns are important as well. Recent studies however employ cross-country surveys such as the International Social Survey Programme (ISSP), the World Value Survey (WVS), the Eurobarometer, and the European Social Survey (ESS) that allow richer cross-country analysis (Chiswick and Hatton, 2003; Mayda, 2006; O'Rourke and Sinnott, 2006; Hainmanueller and Hiscox, 2007; Facchini and Mayda, 2008; 2009). The analysis of the economic determinants of attitudes towards immigration focuses on the income distribution effects of immigrants. The consensus is that, under the self-interest maximising behaviour, individual responses in survey datasets reflect the impact of immigration on each respondent's utility. Therefore, income distribution predictions may be tested through the analysis of individual responses combined with their socio-economic and personal attributes.

Most of the existing literature considers a highly stylized economy that is usually described by a simple factor proportions analysis or a two-sector Heckscher-Ohlin trade model. In both these frameworks, ignoring cases in which wages are not affected, the labour market effects of immigration depend on the skill composition of the migrants relative to the natives in the destination country. If immigrants are on average less skilled than the native population, their presence will hurt unskilled and benefit skilled natives. On the other hand, if immigrants are on average more skilled than natives, they will benefit the domestic unskilled, while hurting the skilled. The evidence is largely consistent with the theoretical predictions (Mayda, 2006; O'Rourke and Sinnott, 2006). Mayda (2006) analysed the economic and non-economic determinants of individual attitudes towards immigrations, within and across both developing and developed countries using data from both the ISSP and WVS. Her results show that skilled individuals favour immigration in countries where the natives are relatively more skilled than immigrants. On the other hand, low skilled individuals favour immigration in countries where immigrants are relatively more skilled than natives. She also shows that non-economic variables (such as crime and culture) correlate with immigration attitudes, but do not alter the labour market results significantly.

However, Hainmueller and Hiscox (2007), using data from the 2003 European Social Survey, found that across Europe higher education and higher skills mean more support for both skilled and unskilled immigrants. Thus people with higher education

and occupational skills are more likely to favour immigration regardless of the skills attribute of the potential immigrants. This result is not consistent with the predictions of the factor-proportions-analysis labour model and the Heckscher-Ohlin trade model. They conclude that individual attitudes towards immigration in Europe have very little to do with fears about labour market competition. They argue that the results might be better explained by an alternative account; more education means greater tolerance and improved understanding of foreign cultures and a taste of cosmopolitanism and cultural diversity.

Following from this, the empirical analysis in this chapter draws on theoretical foundations of welfare state determinants of individual attitude towards immigration to offer an alternative explanations as to why skilled or higher educated individual are more likely to favour immigration irrespective of the skill levels of the potential immigrants. The chapter is, therefore, most related to two empirical papers (Facchini and Mayda, 2009; Hanson, Scheve, and Slaughter, 2007) that focus on welfare state determinants of individual attitudes towards immigration. Using data for the US for 1992 and 2000, Hanson, Scheve, and Slaughter (2007) are able to conclude that welfare-state considerations are important in explaining differences in individual attitudes toward alternative globalization strategies (migration and trade). They developed a framework for examining how pre-tax and post-tax cleavages may differ across globalization strategies and also fiscal jurisdictions. Applying this framework to the case of individual immigration and trade preferences across U.S. states, they find that high exposure to immigrant fiscal pressures reduces support for freer immigration among natives, especially the more-skilled.

Subsequently, Facchini and Mayda (2009) contribute further to this nexus of the literature with a more comprehensive cross country analysis of the welfare state determinants of individual attitudes towards immigration. They consider a simple redistributive welfare state, characterized by a linear income tax and assume that revenues are lump-sum rebated to all citizens. In their model, an inflow of unskilled migrants (relative to natives) will make all natives worse off, by causing a given level of redistribution to become more costly. More specifically, if the welfare state adjusts through a change in the taxation level in order to maintain the same level of per capita benefits (tax adjustment model), higher income individuals will be more negatively affected, as they are on the "contributing" end of the system. On the other hand, if the adjustment takes place through changes in the size of per capita benefits in order to keep the same level of taxation (benefit adjustment model), lower income individuals will be the ones more adversely affected by immigration, as they are on the "receiving" end of the system. If, on the other hand, an inflow of skilled migrants takes place, all the above effects are reversed. All natives will gain with migration through the welfare-state channel. Under the tax adjustment model, higher-income individuals

will be more positively affected than poor ones by the decrease in tax rates. Under the benefit adjustment model, lower-income individuals will be more positively affected than rich ones, given that the increase in per capita benefits is mostly relevant for this income category. Based on this model they conduct empirical analyses using datasets from both the 1995 National identity module of the ISSP and the 2003 round of the ESS. Their results are consistent with the tax adjustment model (an adjustment to immigration that is carried out through changes in the tax rates). They conclude that high income individuals oppose immigration in countries where immigration is unskilled and considered a net burden to the welfare state. They also indicate that the data suggest an opposite pattern when immigration is skilled relative to native.

The study in this chapter differs from Facchini and Mayda (2009) and the previous literature in four main ways. Firstly, the analysis in this chapter focuses specifically on European attitudes towards immigrants from poor countries outside Europe. By this departure, the chapter is able to provide some empirical evidence that is related to the more specific aspect of immigration policy that dominants public debates and political differences especially in western Europe. Academically, the focus on immigrants from poorer countries outside Europe provides, arguably, a more precise proxy for the perceived skills composition of the potential immigrants than in previous studies. For instance, Facchini and Mayda (2009) and Mayda (2006) measure the perceived skill composition of potential immigrants by calculating the ratio of skilled to unskilled labour in the native population relative to the immigrant population. Thus the higher the calculated relative skill ratio, the more unskilled immigrants are compared to natives. They admit that, the relative skill ratio measure is likely to understate the actual skill level of natives to immigrants because the immigration statistics used are for legal migration only and also because educated immigrants often work in occupations that require lower skills than their education level. However, apart from the issue of accuracy with the OECD International Migration statistics dataset used in calculating the relative skill ratio, it may also be argued that their constructed relative skill ratio variable does not necessarily capture the individual perceptions of the skill composition of potential immigrants. As an alternative measure to the cross-country skill composition of resident immigrants, Facchini and Mayda (2009) also simply employed the per capita GDP of the host country with the empirical justification that high per capita GDP countries have a higher supply of skilled to unskilled labour than low per capita countries. Hence high per capita GDP countries attract predominantly unskilled labour from low per capita GDP countries. While this argument is supported by data, it does not necessarily follow that individuals in the high per capita GDP countries would automatically perceive potential immigrants as unskilled. However, with the availability of a specific survey question that focuses on attitudes towards immigrants from poorer countries outside Europe, the analyses in this chapter takes a closer step to capturing individual

112

attitudes towards predominantly unskilled immigrants. Hainmueller and Hiscox (2007) provides empirical evidence to support the hypothesis that immigrants from poorer countries are more likely to be perceived as unskilled by respondents while immigrants from richer countries are more likely to be perceived as highly skilled.

The second main departure from the previous literature is that the analysis in this chapter also benefits from a more direct measure of subjective individual views regarding the effect of immigrants on their welfare state. Facchini and Mayda (2009) relied on macro level welfare state variables (labour tax rates and per capita benefits) to construct a welfare state progressivity indicator which is then used implicitly (as a gauge of welfare state concerns) to estimate the welfare state determinants of individual attitudes towards immigration. The availability of a set of direct questions in the 2008/09 edition of the ESS provides an opportunity to use the explicit views of individuals in the analyses of attitudes towards immigration.

The third main departure from Facchini and Mayda (2009) is methodological. While their study mostly applied a standard probit model for the empirical estimations, this study employs a bivariate ordered probit model. This allows the joint estimation of the determinants of both the subjective views regarding the effects of immigrants on the welfare state and the individual attitude towards immigration. Apart from controlling for possible endogeneity between the two, this method makes it possible to clearly disentangle the effects of individual characteristic on their subjective welfare state and consequently their attitudes towards immigration.

The final main difference from Facchini and Mayda (2009) is that the empirical analyses in this chapter rely on the inter-generational welfare framework as opposed to the intra-generational redistributive economy model adopted by Facchini and Mayda (2009). This makes it possible to explore how differences in age structure affect individual attitudes towards immigration when welfare state concerns are taken into consideration. From a policy point of view, it also provides an opportunity to relate the empirical analyses of individual attitudes towards immigration to the issue of ageing populations in Europe and its consequences to the sustainability of public pay as you go pension systems.

In relation to the above, the next section outlines the theoretical framework and generates the empirical hypotheses that are tested in this chapter.

4.4 Theoretical Framework

This section presents the analytical framework that motivates the empirical analysis undertaken in this chapter. While part of the empirical analysis covers individual attitudes based on subjective views regarding the effects of immigrants on the welfare state as a whole, the theoretical models presented in this section are primarily focused on pensions as one aspect of the welfare state. They attempt to provide a structure to how individual attitudes towards immigration could be influenced by pension motives. This makes it possible to look at the role of immigrants within the context of the ageing population problem which is at the heart of the public pension sustainability issue in most European economies. The models which lay down the formal arguments for the empirical hypotheses are based on Scholten and Thum (1996), Haupt and Perters (1998) and Krieger (2004). In this regard, this section focuses on age (age groupings) and skill levels as the leading individual characteristics that explain individual attitudes towards immigration when social security concerns are taken into consideration. This relies on the general reasoning that individual attitudes towards immigration are linked to deeply held views about the economic self-interest and social identity of the native population (Card, Dustmann and Preston, 2005; Scheve and Slaughter, 2001). The argument in this section shows that the economic effects of immigrants are not confined to labour market outcomes (such as wages, skills shortages and labour market competition) alone but extends to welfare state outcomes (particularly taxes and pensions) as well.

4.4.1 Individual Age and Attitudes towards Immigration

How can an individual's age or age group determine their attitude towards immigration in a welfare state? The answer to this question can be investigated using Scholten and Thum (1996) - the ST model. They consider a three period overlapping generations (OLG) model in a typical immigrant receiving country where the population consist of young workers (Z_t), middle-aged workers (Z_{t-1}) and old (Z_{t-2}) generations. The young and middle-aged workers pay a contribution (tax) to the welfare state out of their labour income while the old generation are retired and receive payments from the public pension system. This reflects the nature of an unfunded pay-as-you-go (PAYG) system.

In this economy, Schoten and Thum assume that the society democratically adopts an immigration policy whereby each voter attempts to maximise their net income of the current and future periods, neglecting the past income stream as sunk. They also

assume that only immigrants who belong to the young generation are considered in the immigration policy at the beginning of each period and immediately after that the immigrants move into the country and are integrated into the labour force. However these immigrants only become citizens with the right to vote after the end of the first period (after about 20 years) when they are in the middle-aged generation. If the labour supply in the country is inelastic, then the total labour force in period t is $L_t = Z_{t-1} + Z_t$, where the young workers are either natives (n_t) or new immigrants (m_t); $Z_t = n_t + m_t$. The (gross) rate of immigration is therefore captured by the ratio of the labour supplies after and before immigration:

$$\lambda_t = \frac{Z_{t-1} + n_t + m_t}{Z_{t-1} + n_t} \tag{4.1}$$

Thus, $\lambda_{(}t) - 1$ represents the growth rate of the labour force due to immigration. They define the domestic population growth as $\pi = n_t/Z_{t-1}$, suggesting that immigrants from the previous period $t - 1$ become fully integrated in period t, having the same reproductive behaviour as the native population and also remain in the country for the rest of their lives. The total labour supply in period t, therefore, consists of generations $t - 1$ and t both of which have experienced internal growth (π) and external growth (λ) and can be re-written as: $L_t = Z_{t-2}[\lambda_{t-1}(1 + \pi_{t-1}) - 1]\lambda_t(1 + \pi)$. With a constant rate of domestic population growth, π, the total labour supply becomes:

$$L_t = Z_{t-2}[\lambda_{t-1}(1 + \pi) - 1]\lambda_t(1 + \pi) \tag{4.2}$$

The ST model assumes a perfectly competitive labour market where each firm faces a decreasing marginal product of labour and where in equilibrium the whole work force is employed with wages that reflect the productivity of the marginal worker. With a linear homogeneous production function of capital and labour where interest rates are constant over time, immigration yields a reduction in the capital intensity for a given capital stock and hence leads to a reduction in wages - at least in the short run. This implies that wages are a function of the immigration rate: $w_t = F(\lambda_t)$ where immigration has a negative effect on gross wages: $\partial w_t/\partial \lambda_t < 0$. From (2.2), the (old age) dependency ratio may be written as:

$$D = \frac{Z_{t-2}}{L_t} = \frac{1}{[\lambda_{t-1}(1 + \pi) - 1]\lambda_t(1 + \pi)} \tag{4.3}$$

Since retirement benefits (pensions) are financed through a pay-as-you-go welfare state, the dependency ratio determines the working generations' tax burden. An increase of the immigration ratio, λ_t, reduces the dependency ratio and the tax burden

for workers. Immigration, therefore, has two effects. Firstly, the injection of more workers from abroad reduces the gross wage. Secondly the increase in the labour force reduces each worker's tax (contribution) to the pension fund. The overall effect of immigration to an individual depends on three things: the age (age-group) of the individual, the way pension benefits and taxes (or contribution rates) are defined in the welfare state and the immigration elasticity of wages.

In the ST model, they assume that the elasticity of wages with respect to the immigration rate is constant: $\eta \equiv \frac{\partial w_t}{\lambda_t} \cdot \frac{\lambda_t}{w_t} = const$. They also assume that the pension system promises a fixed percentage, q, of current wages to every member of the old generation. Thus the retirement income of an old person amounts to $q.w_t$. The total pension expenditure is $Z_{t-2}.q.w_t$ and is paid for by the taxes (contributions) from all the workers, $b_t.w_t.L_t$. Thus the budget constraint is defined as $b_t.w_t.L_t = Z_{t-2}.q.w_t$. This translates to $b_t = q.Z_{t-2}/L_t$ and confirms that the tax or contribution rate adjusts to the dependency ratio: $b_t = q.D$. Using (2.3), the net wage of a worker after contribution or tax can be written as:

$$w_t^n = w_t \left(1 - q.\frac{1}{[\lambda_{t-1}(1+\pi) - 1]\lambda_t(1+\pi)} \right) \qquad (4.4)$$

For a young worker in this economy, the decrease in wages as a result of immigration is temporary since it only lasts through the first period of their working life. However, the reduction in the tax rate or the pension contribution rate as a result of immigration lasts through their entire working life. The young therefore views an additional immigrant as relatively beneficial since the additional worker helps them to finance social security system over a longer period. As life-time income maximizers, the young generation will favour more immigration. Schoten and Thum (1996) argue that as the individual grows older and closer to the retirement period, the wage depressing effect of immigration becomes more and more important to them than the financing effect. At retirement the individual no longer pays taxes or contributions hence they have no interest in the financing effect. However, since pensions have a fixed relation with gross wages any decrease in the gross wage as a result of immigration reduces the pension benefits. Therefore zero immigration will be the preferred policy that will maximise the retired generation's income from the public pension. This shows that there is a negative continuous relationship between the incentives for immigration and age such that members of the population can be ranked in terms of their desired level of immigration.

The middle-aged worker in this model is the median voter and their optimal immigration policy preference may be solved by setting the first derivative of the net

116

wage with respect to the immigration rate equal to zero:

$$\frac{\partial w_t^n}{\partial \lambda_t} = \frac{\partial w_t}{\partial \lambda_t}(1 - q.D) + w_t.q\frac{1}{[\lambda_{t-1}(1 + \pi) - 1]\lambda_t(1 + \pi)} = 0 \qquad (4.5)$$

Assuming that all generations behave the same way, taking the decisions of all previous and all succeeding median voters as given then the optimal immigration rate in period is given by

$$\lambda_t^* = \frac{1 + \sqrt{1 - 4q(1 - \eta)/\eta}}{2(1 + \pi)} \qquad (4.6)$$

The immigration rate, λ_t^*, maximises the net income of a middle-aged individual in period t. The optimal immigration policy preference of the middle-aged worker, λ_t^*, is lower than the preferred immigration rate of the young generation but higher than the retired generation's immigration policy preference[4].

Haupt and Perters (1998) point out that by modifying the ST model and allowing the pension rates (q) to vary with the dependency ratio while taxes or contribution rates remain fixed, the above results can reversed. In their modified model the retired generation prefer more immigration while the young have no incentive to allow any immigrants. However, the analysis in this chapter adopts the ST assumption of fixed pensions and variable contribution as more realistic in the case of European countries as shown in section 4.2 above.

This leads to the hypothesis: *Old and retired individuals are more likely to oppose immigration than young and middle-aged individuals. In other words, there is a negative relationship between age and pro-immigration preferences.*

4.4.2 Individual Skills and Attitudes towards Immigration

To understand how skills might influence individual attitudes towards immigration under welfare state considerations, Krieger (2004) develops a simple two period OLG model with young workers and old retired generations to show how public pension motives in addition to labour market outcomes can influence attitudes towards immigration when voters are differently skilled.

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[4]This means that a higher relative pension rate strengthens the incentives for the median voter to have more liberal immigration policy as the elasticity is negative. Higher birth rates reduce the necessity of immigration.

Building on Scholten and Thum (1996) as presented above, Krieger (2004) adopts the defined-benefit pension system (i.e. fixed pension rates and a variable contribution/tax rate) but distinguish the working generation by their skill levels. Thus the total labour force consists of skilled (S_t) and unskilled (U_t) workers plus immigrants (M_t) who are assumed to be unskilled: $L_t \equiv S_t + U_t + M$. This allows the specific analysis of attitudes where immigrants come in not necessarily to fill up skill shortage occupations. The number of retirees in period t is given by L_{t-1}. Similar to the ST model above, all native workers and the retired generation vote on the immigration policy which can be described by the ratio of total labour force and native labour force:

$$\lambda_t = \frac{S_t + U_t + M}{S_t + U_t} \tag{4.7}$$

The population growth rate is given by the ratio of the labour force from the two generations, i.e. $\pi_t = (S_t + U_t)/(S_{t-1} + U_{t-1}) - 1$ and hence the dependency ratio is given by:

$$D_t(\lambda_t) = \frac{L_{t-1}}{L_t} = \frac{S_{t-1} + U_{t-1}}{S_t + U_t + M} = \frac{1}{(1 + \pi_t)\lambda_t} \tag{4.8}$$

As in the ST model, the labour market is perfectly competitive and wages depend on immigration since the total number of unskilled workers increases with each immigrant. Thus both skilled and unskilled wages are functions of the immigration rate: $w_t^s(\lambda_t)$ with $\partial w_t^s/\partial \lambda_t > 0$ and $w_t^u(\lambda_t)$ where $\partial w_t^u/\partial \lambda_t < 0$. In other words, immigration increases the wages of skilled workers relative to unskilled and decreases the relative wages of unskilled workers.

With the underlying assumption of a pay-as-you-go pension system, the public pensions budget constraint is given by:

$$b_t \left(w_t^s.S_t + w_t^u(U_t + M_t) \right) = q_t.w_t(S_{t-1} + U_{t-1}) \tag{4.9}$$

As in the ST model above, b_t is the tax (contribution) rate while q_t is the fixed (constant) replacement (pension benefit) rate. w_t is the average wage given by $w_t = \theta w_t^s + (1 - \theta)w_t^u$ with $\theta = S_t/(S_t + U_t + M_t)$. This means that each retiree receive the same pension benefit which is related to the average wage which is also a function of the immigration rate as follows: $\partial w_t/\partial \lambda_t < 0$ for a labour market where $w_t^s > w_t^u$. With a defined-benefit (constant replacement) rate, the tax rate needs to change endogenously to changes in the underlying parameters of the model such as the domestic population growth rate (as well as life expectancy) and the number of

immigrants hence:

$$b_t = \frac{q}{(1 + \pi_t)\lambda_t} = q.D_t(\lambda_t)$$ (4.10)

Similar to the result of the ST model, the retired generation has no incentive to vote for any immigration. Thus the old and retired will still prefer a zero unskilled immigration rate ($\lambda_t = 1$), *ceteris paribus* since the relationship $\partial w_t / \partial \lambda_t < 0$ implies that they will unambiguously suffer an income loss from immigration. On the other hand, skilled individuals would unambiguously gain through the reduction in the tax rate as a result of immigration since $\partial w_t^s / \partial \lambda_t > 0$. Thus, skilled individuals will prefer more unskilled immigration as this maximises their life-time income. However, for the unskilled individual, immigration has two opposing effects on their life-time income. Firstly, the inflow of more unskilled immigrants reduces the gross wages of the unskilled individual in the short run. Secondly, the increase in the total working population as a result of unskilled immigration reduces the dependency ratio and hence the tax rate. With constant elasticity of wages with respect to unskilled immigration, the net effect of immigration on unskilled wages can be shown to be positive (if unskilled individual are assumed to be myopic with $\partial w_{t+1} / \partial \lambda_{t+1} = 0$). However, the important point for the analysis in this chapter is that intuitively, skilled individuals will prefer more immigration than unskilled individuals.

This result, leads to the hypothesis that: *Skilled individuals prefer more immigration than unskilled (low skilled) individuals when social security concerns are taken into consideration. Thus, there is a positive relationship between individual skills (education) and pro-immigration preferences.*

4.5 Data and Method

The data used for the empirical analysis in this chapter mainly comes from the fourth round of the European Social Survey (ESS4); edition 3.0 released on 24th March, 2010; and administered between 2008 and 2009. The ESS is a biennial multi-country individual level survey covering over 30 nations distributed by the Norwegian Social Science Data Services. It is an academically-driven social survey funded through the European Commission's Framework Programmes, the European Science Foundation and national funding bodies in each country. It is designed to chart and explain the interaction between Europe's changing institutions and the attitudes, beliefs and behaviour patterns of its diverse populations. The first round was fielded in 2002/2003, followed by the second and third in 2004/05 and 2006/07. Nearly all the

data for the fourth round were collected between August 2008 and June 2009 and the dataset (edition 1.0) was first released realised on 17th December 2009.

The survey covers 28 countries and consists of up to 54,988 observations (respondents) with the average country sample being around 1900 respondents. The countries are: Belgium, Bulgaria, Switzerland, Cyprus, Germany, Denmark, Estonia, Span, Finland, France, UK, Hungary, Israel, Netherlands, Norway, Poland, Portugal, Russian Federation, Sweden, Slovenia, Slovakia Croatia, Czech Republic, Greece, Latvia, Romania, Turkey and Ukraine. The stratified random sample was designed to be a representative sample of the residential population of each country aged fifteen years and above regardless of their nationality citizenship or legal status. Germany (5.00%) has the largest proportion of the total unweighted sample size followed by Spain (4.68%) and Russia (4.57%), while Cyprus (2.21%) has the smallest proportion of the total sample. However, as shown in Table A4.2 (Appendix), Russia has the largest proportion of the weighted sample.

4.5.1   Outline of Relevant Survey Questions

Respondent's answers to two questions from the ESS4 survey are used as a measure of their subjective assessment of the effect of immigrants on the welfare state in their country. The first question is:

"A lot of people who come to live in [country] from other countries pay taxes and make use of social benefits and services. On balance, do you think people who come to live in [country] receive more than they contribute or contribute more than they receive? Please use this card where 0 means they receive much more and 10 means they contribute much more."

The resulting variable from respondents' answers to this question is an ordered categorical variable named Subjective Welfare Sate Effect(1)–*SWSE(1)* with the outcomes shown below:

$$SWSE(1) = \begin{cases} 0 & receive\ more\ than\ they\ contribute \\ 1 & \\ 2 & \\ \vdots & \\ 10 & contribute\ more\ than\ they\ receive \end{cases}$$

The second question is:

"Using this card please tell me to what extent you agree or disagree that social benefits and services in [country] encourage people from other countries to come and live here?"

The resulting variable from the answers to this second question, named *SWSE(2)* is also an ordered categorical variable which takes the following outcomes:

$$SWSE(2) = \begin{cases} 1 & \textit{Strongly agree} \\ 2 & \textit{Agree} \\ 3 & \textit{Neither agree nor disagree} \\ 4 & \textit{Disagree} \\ 5 & \textit{Strongly disagree} \end{cases}$$

SWSE(2) is used as an alternative variable (regressor) in place of *SWSE(1)* in the analysis of individual attitudes towards immigration. Thus, *SWSE(2)* is theoretically considered a proxy for *SWSE(1)*. The ESS4 also includes a question that makes it possible to measure the overall immigration policy preferences of individuals as an indication of attitudes towards immigration:

"To what extent do you think [country] should allow people from the poorer countries outside Europe to come and live here?"

The resulting Immigration Policy Preference (IMPP) variable takes the following outcomes:

$$IMPP = \begin{cases} 1 & \textit{Allow none} \\ 2 & \textit{Allow few} \\ 3 & \textit{Allow some} \\ 4 & \textit{Allow many} \end{cases}$$

This particular question is chosen over other immigration policy preference questions in the survey because it reflects the assumptions in the analytical framework better than its counterparts since immigrants from *poor countries outside Europe* are more likely to be perceived as lower-skilled (unskilled) individuals by the respondents while immigrants from richer nations are more likely to be identified as individuals with higher-skilled. This intuitively compelling argument has been empirically verified to be accurate by Hainmueller and Hiscox (2007) using the evidence on the skill levels of immigrants compiled in the International File of Immigration Surveys (IFIS) database. The other immigration policy preference questions available from the ESS4 survey are:

"To what extent do you think [country] should allow people of the same race or ethnic group as most [country's] people to come and live here?" and

"To what extent do you think [country] should allow people of a different race or ethnic group as most [country's] people to come and live here?"

The answers to these two questions take on the same outcomes as the IMPP above. The variables resulting form these two questions were used to analyse the role of racism and ethnicity in the previous chapter.

The nature of the identified questions and corresponding variables presents an opportunity to estimate the determinants of individual attitudes towards immigration focusing on the endogenously determined subjective welfare state effects of immigrants.

4.5.2 Empirical Model and Estimation Method

Given the variables $IMPP$ and $SWSE$ in relation to the underlying analytical framework, it seems straightforward to adopt a standard ordered probit model for estimating the individual attitudes towards immigration as a function of $SWSE$ and the individual characteristic such as age and skill or education levels. This method assumes that the SWSE variables are independent and exogenous determinants of $IMPP$. However, it may be argued that the individual subjective views regarding the effect of immigrants on the welfare state are also determined by the individual characteristics and hence are not independent. It may also be argued that an individual's subjective view regarding the effect of immigrants on the welfare state is to some extent determined by the individual's attitude towards immigration and vice versa, hence the $SWSEs$ might not be exogenous determinants of $IMPP$.

In order to eliminate the threat of multicollinearity and endogeneity bias from the estimates and show a more precise causal relationship, a bivariate empirical model (relating individual Attitudes Towards Immigration ($ATIM$) and the Welfare State Effects (WSE) of immigrants) is more appropriate. This allows the joint dependence of $ATIM$ and WSE on individual characteristic to be analysed simultaneously. Thus, the empirical model consists of two equations relating the latent attitudes towards immigration ($ATIM$) and the welfare state effects of immigrants (WSE) to individual characteristics (X) of the respondents:

$$WSE_i = \acute{X}_{1i}\beta_1 + \varepsilon_{1i} \tag{4.11}$$

$$ATIM_i = \gamma WSE_i + \acute{X}_{2i}\beta_2 + \varepsilon_{2i} \tag{4.12}$$

The explanatory variables (individual characteristics and attributes) are given by $\acute{X}_1$ and $\acute{X}_2$ with β_1 and β_2 representing the vectors of coefficients to be estimated, γ is an unknown scalar that measures the relationship between equations (2.11) and (2.12). If $\gamma = 0$ then WSE is not endogenously determined in equation (4.12) and hence the equations could be estimated in a seemingly unrelated manner. The error terms, ε_1 and ε_2 are assumed to be distributed joint normally $N(0, \Sigma)$ and correlated with each other while the subscript i denotes an individual observation.

The observed variables relating to the latent variables, WSE and $ATIM$ are the subjective welfare state effect of immigrants ($SWSE$) and the immigration policy preferences ($IMPP$) respectively. Thus the dependent variables for both equations (2.11) and (2.12) as observed in $IMPP$ and $SWSE$ respectively take the form of ordered categorical data hence the bivariate ordered probit model can be applied (Greene and Hensher, 2009). $IMPP$ and $SWSE$ are related to the corresponding latent variables as flows:

$$IMPP = \begin{cases} 1 & Allow\ none & if & ATIM_i \leq \mu_1 \\ 2 & Allow\ few & if & \mu_1 < ATIM_i \leq \mu_2 \\ 3 & Allow\ some & if & \mu_2 < ATIM_i \leq \mu_3 \\ 4 & Allow\ many & if & \mu_3 < ATIM_i \end{cases}$$

$$SWSE(1) = \begin{cases} 0 & receive\ more\ than\ they\ contribute & if & WSE_i \leq \delta_1 \\ 1 & & if & \delta_1 < WSE_i \leq \delta_2 \\ \vdots & & & \\ 10 & contribute\ more\ than\ they\ receive & if & \delta_{10} < WSE_i \end{cases}$$

$$SWSE(2) = \begin{cases} 1 & Strongly\ agree & if & WSE_i \leq \delta_1 \\ 2 & Agree & if & \delta_2 < WSE_i \leq \delta_3 \\ 3 & Neither\ agree\ nor\ disagree & if & \delta_3 < WSE_i \leq \delta_4 \\ 4 & Disagree & if & \delta_4 < WSE_i \leq \delta_5 \\ 5 & Strongly\ disagree & if & \delta_5 < WSE_i \end{cases} \quad (4.13)$$

The unknown parameters μ and δ are the cut points or threshold parameters for each outcome such that $\mu_1 < \mu_2 < \mu_3$ and $\delta_1 < \delta_2 \ldots$

According to Daykin and Moffat (2002), the estimated cut points can be informative in certain ways. This is in spite of the fact that they are typically treated as nuisance parameters and rarely given any interpretation. They show that if the statement that results in the variable for which the cut points are estimated is one with which most people are either in strong agreement or strong disagreement, then the estimated cut points would be expected to be tightly bunched together in the middle of the

123

distribution. If, in contrast the statement is one on which most people are not keen to be seen expressing strong views, then the cut points would be expected to be more widely spread. They also show that if the wording of the statement is obscure and hard to understand, then the middle cut points might be expected to be far apart, reflecting that respondents who fail to understand the statement tend to report indifference.

Thus the probability that $SWSE = j$ and $IMPP = k$ is simply:

$$
\begin{aligned}
Pr(SWSE_1 = j, IMPP_1 = k) &= Pr(\delta_{j-1} < WSE_i \leq \delta_j, \mu_{k-1} < ATIM_i \leq \mu_k) \\
&= Pr(WSE_i \leq \delta_j, ATIM_i \leq \mu_k) \\
&\quad - Pr(WSE_i \leq \delta_{j-1}, ATIM_i \leq \mu_k) \\
&\quad - Pr(WSE_i \leq \delta_j, ATIM_i \leq \mu_{k-1}) \\
&\quad + Pr(WSE_i \leq \delta_{j-1}, ATIM_i \leq \mu_k)
\end{aligned}
\tag{4.14}
$$

If ϵ_{1i} and ϵ_{2i} from equations (2.11) and (2.12) are distributed as bivariate standard normal with correlation ρ, then the individual contribution to the likelihood function could be expressed as:

$$
\begin{aligned}
Pr(SWSE_1 = j, IMPP_1 = k) &= \Phi_2(\delta_j - \acute{X}_{1i}\beta_1, (\mu_k - \gamma \acute{X}_{1i}\beta_1 - \acute{X}_2\beta_2)\varsigma\tilde{\rho}) \\
&\quad - \Phi_2(\delta_{j-1} - \acute{X}_{1i}\beta_1, (\mu_k - \gamma \acute{X}_{1i}\beta_1 - \acute{X}_2\beta_2)\varsigma\tilde{\rho}) \\
&\quad - \Phi_2(\delta_j - \acute{X}_{1i}\beta_1, (\mu_{k-1} - \gamma \acute{X}_{1i}\beta_1 - \acute{X}_2\beta_2)\varsigma\tilde{\rho}) \\
&\quad + \Phi_2(\delta_{j-1} - \acute{X}_{1i}\beta_1, (\mu_{k-1} - \gamma \acute{X}_{1i}\beta_1 - \acute{x}_2\beta_2)\varsigma\tilde{\rho})
\end{aligned}
\tag{4.15}
$$

This is the simultaneous bivariate ordered probit model specification where Φ_2 is the bivariate standard normal cumulative distribution function, while $\varsigma = \frac{1}{\sqrt{1+2\gamma\rho+\gamma^2}}$ and $\tilde{\rho} = \varsigma(\gamma + \rho)$. If $\gamma = 0$ then the model simplifies into the seemingly unrelated specification in such a way that $\varsigma = 1$ and $\tilde{\rho} = \rho$. The difference between rho(ρ) and gamma(γ) is that while rho measures the correlation between the error terms (ε_1 and ε_2) in equations (2.11) and (2.12), gamma estimates the effect that $SWSE$ has on $IMPP$. Any statistically significant correlation between the two error terms is indicative that the exogeneity of $SWSE$ in $IMPP$ cannot be accepted. The model parameters γ, ρ, μ and δ are estimated along with the β coefficients of the explanatory variable, using the full information maximum likelihood (FIML) estimation method as implemented by Sajaia (2008) for Stata. The FIML estimator is based on the entire system of equations. With normally distributed disturbances, FIML is efficient among all estimators. The FIML estimator treats all equations and all parameters jointly. The model parameters are obtained by maximising the log-likelihood function below for the entire sample of

size N:

$$\ln L = \sum_{i=1}^{N} \sum_{j=0}^{J} \sum_{k=1}^{K} I(SWSE_i = j, IMPP_i = k) \ln Pr(SWSE_i = j, IMPP_i = k) \quad (4.16)$$

For the variables $SWSE(1)$, $J = 10$ and for $SWSE(2)$, $J = 5$ while for $IMPP$, $K = 4$. This method allows the two equations to be estimated with the same explanatory variables. However, in order to improve model identification, instruments (variables that can be excluded on each of the equations on theoretical grounds) must be included in the $\hat{X}_1$ vector in equation (4.11). Thus, the vectors $\hat{X}_{1i}$ and $\hat{X}_{2i}$ may contain identical explanatory variables, however, to improve identification properties of the model, at least one element of $\hat{X}_{1i}$ should not be present in $\hat{X}_{1i}$. This is essential because, as shown in Sajaia (2008), although both equations are globally convex and the likelihood function for the system is highly nonlinear, the nonlinearity cannot be used as a source of identification as it is done in other models of this kind (Filer and Honig, 2005). The variables chosen as instruments from ESS4 dataset for the estimations are discussed in the latter part of this section.

Intuitively, the argument is that, the individual's immigration policy preference depends on whether they think immigrants contribute more to social welfare through taxes (and hence a reduction in their own tax burdens) or whether they think immigrants receive more in social benefits (and hence a cost to the welfare state). Thus, all things being equal, it is expected that if an individual accepts that on balance immigrants receive more in social benefits and services than they contribute in taxes, then that individual is more likely to prefer a strict immigration policy ("allow few", or "allow none"). On the other hand, individuals who believe that immigrants contribute more in taxes than they receive in social benefits are more likely to choose to "allow more" immigrants, *ceteris paribus*.

4.5.3   Descriptive Statistics

Starting with the main dependent variable, $IMPP$, Table 4.2 shows that majority of the respondents either prefer to "allow few" (32.60 percent) or "allow some" (30.78 percent) immigrants(from poor countries outside Europe) to come and live in their country. Over half of the sample (52.26 percent) prefers to "allow none" or "allow few" immigrants to come and live in their country. On the extreme ends nearly 20 percent would "allow none", while about 12 percent would "allow many" immigrants to come and live in their respective countries on average. With a mean of 2.36 and a median of 2, the collective individual immigration policy preferences are slightly skewed to

Table 4.2: Policy Preferences (immigrants from poorer countries outside Europe)

	Response code	Observations	Percent	Cum.
Allow none	1	10,810	19.66	20.77
Allow few	2	17,925	32.6	52.26
Allow some	3	16,925	30.78	83.04
Allow many	4	6,395	11.63	94.67
Missing	-	2,933	5.33	100
Mean (St. dev)	2.36 (0.94)			
Median	2			
Total		54.988	100	

the right (positively). As expected, this indicates that generally people prefer more restrictive immigration policies than open immigration policies, although this varies slightly across countries and individuals with +/- 0.94 standard deviation.

Table 4.3 shows that residents of Sweden are more open to immigration (from poor countries outside Europe) than any other country in the dataset with a mean response of 3.18 +/- 0.72, while Hungarians are the most unfriendly towards immigration in the dataset. It is interesting, however, to note from the distribution of means, medians and standard deviations that while preferences are generally skewed to the right, towards restrictive policies, this is not the case for some countries.

As shown in Figure A2.1 in the Appendix, the preferences of people in Sweden, Poland, Norway, Germany, Switzerland, Belgium, Croatia, the Slovak Republic, Bulgaria, Denmark and the Netherlands are skewed to the left, towards more open immigration policies. Thus in general people from these countries are more open to immigration than the other countries in the dataset. Table A4.3 provides more detailed statistics about individual immigration policy preferences to confirm this. The table is sorted by dependency ratios and shows that countries with high dependency ratios tend to be generally more open to immigration.

Figure 2.2 and 2.3 provide a picture of how the endogenous dependent variable, $SWSE(1)$, and its proxy $SWSE(2)$ are respectively distributed. Figure 2.2 shows that, the assessment of the majority of the people is in the region of "immigrants neither receive more than they contribute or contribute more than they receive from the welfare". It shows that despite the emotional public debates about the effects of immigrants on public finances and services, people are generally not willing to make extreme judgements on either side of the issue; that immigrants contribute more than they receive or receive more than they contribute to the welfare state. Nevertheless, the distribution is slightly skewed to the right, indicating that in general people believe that immigrants receive more in social benefits and services than they contribute in taxes. As a consequence, people also generally believe that social benefits

126

Country	Total	Mean	Std dev	Median
Sweden	1,830	3.18	0.72	3
Poland	1,619	2.92	0.81	3
Norway	1,549	2.73	0.76	3
Germany	2,751	2.64	0.88	3
Switzerland	1,819	2.63	0.75	3
Belgium	1,760	2.6	0.87	3
Croatia	1,484	2.59	1.04	3
Slovakia	1,810	2.58	0.94	3
Bulgaria	2,230	2.58	1.09	3
Netherlands	1,778	2.57	0.81	3
Romania	2,146	2.5	1.04	2
Slovenia	1,286	2.49	0.86	3
Denmark	1,610	2.47	0.82	2
France	2,073	2.45	0.82	2
Ukraine	1,845	2.38	1.08	2
Spain	2,576	2.37	0.87	2
UK	2,352	2.37	0.86	2
Finland	2,195	2.36	0.78	2
Czech Republic	2,018	2.18	0.84	2
Portugal	2,367	2.17	0.89	2
Russian Federation	2,512	2.16	0.97	2
Israel	2,490	2.12	0.98	2
Estonia	1,661	2.03	0.92	2
Turkey	2,416	1.96	1	2
Cyprus	1,215	1.84	0.61	2
Greece	2,072	1.84	0.76	2
Latvia	1,980	1.84	0.97	2
Hungary	1,544	1.77	0.81	2
Total	54,988	2.36	0.94	

127

Figure 4.2: Subjective Views of the Welfare State Effects of Immigrants:SWSE(1)
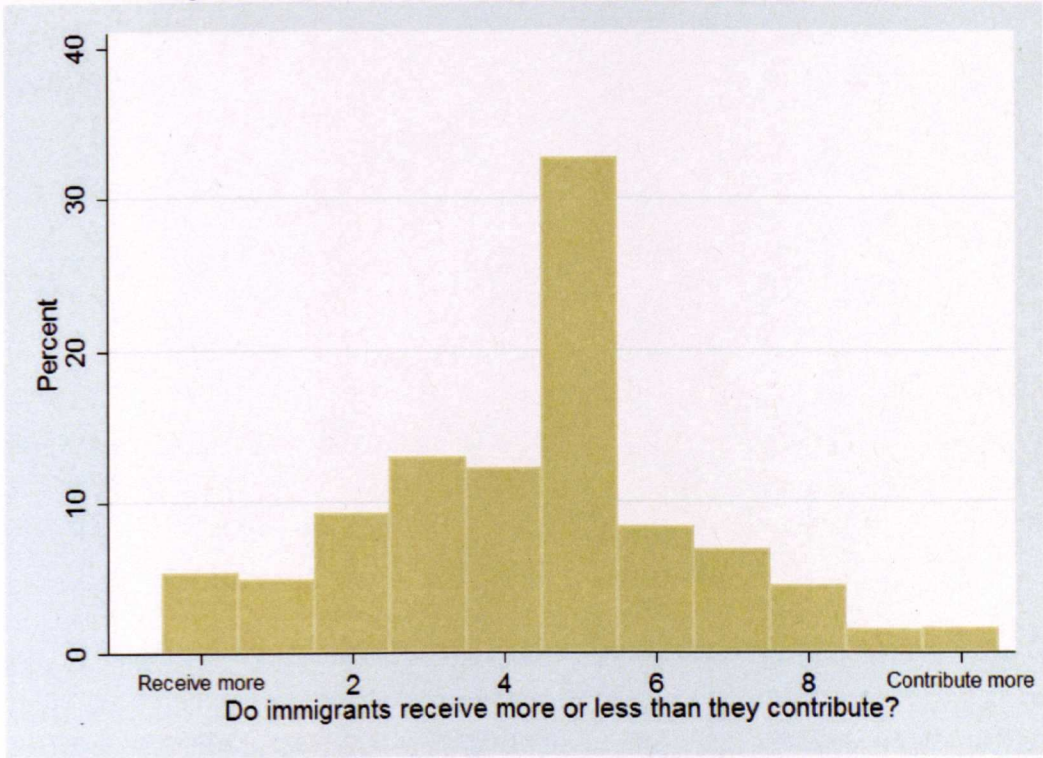
Figure 4.3: Subjective Views of the Welfare State Effects of Immigrants:SWSE(2)
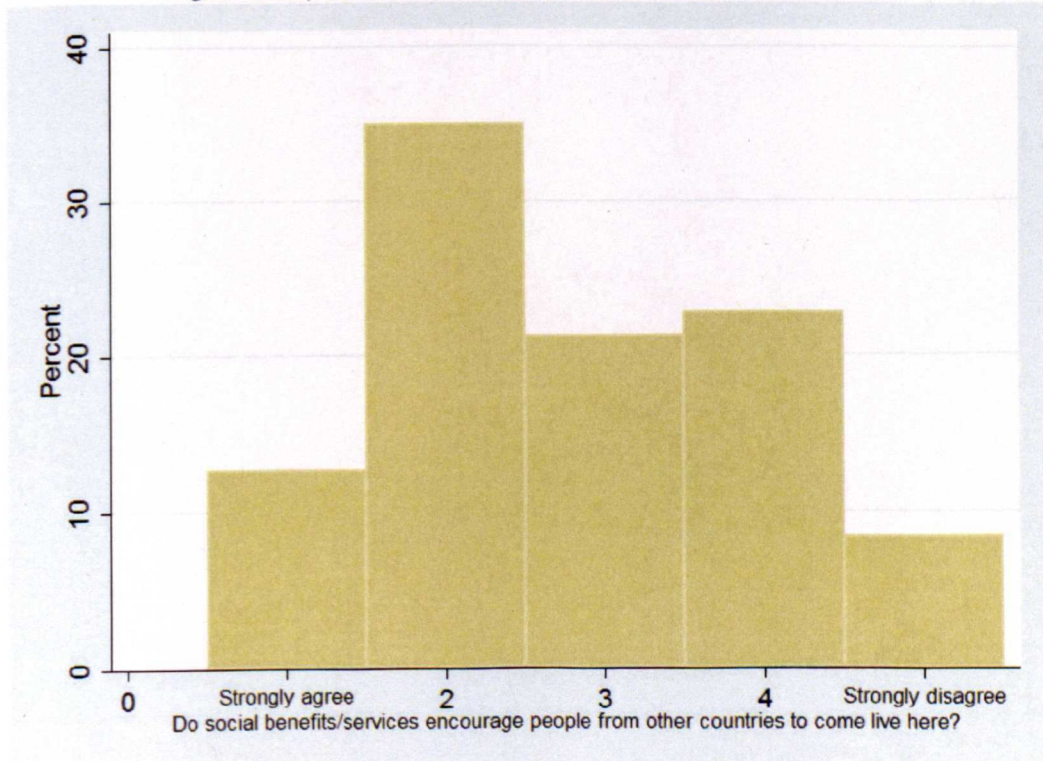
and services encourage immigrants to come and live in their respective countries. Figure 2.3 shows that the majority of people seem to "agree" (though not strongly) that social benefits and services encourage immigrants to come and live in their country. As one would expect, given the differences in welfare systems, tax levels, population dynamics and other economic conditions, the distributions of $SWSE(1)$ and $SWSE(2)$ differ significantly across countries.

Table 4.4 provides some statistics to show the cross country differences in subjective individual perceptions about the welfare state effects of immigrants (more detailed statistics are presented in Tables A2.4 and A2.5 in the Appendix). The statistics indicate that residents in countries that are less noted as large immigrant-receiving countries and less noted as having a relatively generous welfare system tend to disagree more that the social benefits and services in their countries encourages immigrants to come live there. They also tend to believe that immigrants contribute more in taxes than they receive in social benefits and services. These countries include Turkey, Cyprus, Israel, Romania, Bulgaria, Ukraine, Latvia and Estonia. The exceptions are the Czech Republic and Hungary where residents generally tend to believe that immigrant receive more in social services than they contribute in taxes. Although residents of Hungary and the Czech Republic also tend to disagree or neither agree nor disagree to the statement that social benefits and services encourages people from other countries to come and live in their country. Not surprisingly, the residents of Germany, UK, France, Switzerland, Denmark, Norway, Finland and Spain tend to agree that social benefit and services encourage immigrants to come and live in their country.

The individual characteristics and variables that jointly determine the subjective welfare state effects of immigrants and the immigration policy preferences are described below.

The explanatory variable *Age-group* is defined to reflect the three generations (young, middle-aged, and retired) prescribed by the analytical framework in section 4.4.2 using the ages of respondents. It is envisaged that the young generation is captured by individuals within the age group of 15-40 years; the middle-aged are 41-65 years old, while those aged above 65 are assumed to be retired. This classification takes into consideration the fact that the minimum state retirement age is 65 years for most countries in Europe, although on average the effective retirement age in most of these countries is between 55 and 65 (see table A4.1 in the appendix). Comparing this to the number of individuals who state that they are retired (in the last seven days) in the survey, we find that while our definition of retired covers 10,820 the actual retired people in the dataset are 14,061 individuals. This is because the individuals who responded that they are retired cuts across all the age groups with individuals who

Table 4.4: Subjective Perceptions of Welfare State Effects of Immigrants								
SWSE(1) Country	Mean	Std. dev.	Median	SWSE(2) Country	Mean	Std. dev.	Median
Turkey	6.33	2.1	6	Bulgaria	4	1.07	4
Cyprus	5.5	2.53	5	Ukraine	3.74	1.2	4
Israel	5.05	2.14	5	Latvia	3.7	0.99	4
Romania	5.01	2.15	5	Estonia	3.53	1	4
Switzerland	4.76	1.94	5	Russia	3.51	1.1	4
Portugal	4.73	2.03	5	Hungary	3.43	1.17	4
Estonia	4.68	1.67	5	Slovakia	3.4	1.06	3
Sweden	4.57	1.76	5	Poland	3.32	0.98	4
Bulgaria	4.51	2	5	Romania	3.12	1.04	3
Poland	4.51	1.89	5	Turkey	3	1.21	3
Spain	4.4	2.2	5	Croatia	2.99	0.99	3
France	4.4	1.96	5	Portugal	2.97	0.99	3
Denmark	4.39	1.92	5	Slovenia	2.96	0.95	3
Norway	4.38	1.92	5	Czech Rep	2.77	1.2	3
Ukraine	4.32	2.33	5	Israel	2.73	1.09	2
Finland	4.27	1.8	4	Netherlands	2.64	1.06	2
Latvia	4.25	2.23	5	Greece	2.6	1.01	2
Netherlands	4.2	1.7	4	Sweden	2.51	0.91	2
Slovenia	4.09	2.18	5	Belgium	2.51	1.15	2
Greece	4.09	2.21	4	Cyprus	2.4	0.97	2
Russia	4.07	2.24	5	Finland	2.35	0.93	2
Croatia	4.06	2.07	5	Spain	2.28	0.97	2
UK	3.84	2.32	4	Denmark	2.27	0.97	2
Belgium	3.82	1.95	4	Switzerland	2.25	0.97	2
Germany	3.78	2.05	4	Norway	2.22	0.9	2
Czech Rep	3.76	2	4	France	2.16	1.08	2
Slovakia	3.64	2.04	4	UK	2.09	0.97	2
Hungary	3.45	2.13	4	Germany	2.01	0.83	2
Total	4.38	2.14		Total	2.79	1.17	

130

are as young as 15years reporting that they are retired. By way of robustness check a dummy variable, *Retired* (equals 0 if not retired), is used in an alternative model estimate together with age as a continuous variable. The summary statistics for the full set of explanatory variables used are presented in Tables 2.5 and 2.6. Further details of the age and retirement distribution across countries are shown in Table A4.6 in the appendix.

Following previous studies (Hainmueller and Hiscox, 2007; Fecchini and Mayda, 2008), two indicators are used as proxies for individual skill levels. First, a dichotomous variable, *Skilled*, is used, which takes the value 1 if the individual's highest level of education is any post-secondary qualification. Thus, the skilled include all who have post-secondary, non-tertiary; first stage of tertiary; and second stage of tertiary as their highest level of educational attainment. This definition fits the benchmark model resulting from Kreiger, 2004. The second indicator for skill levels used is the individuals' *Years of schooling* variable. This is a continuous variable that simply counts the total number of years of full-time education completed by the respondent. Note that income is not used as a proxy for skill in this study since the income variable in the ESS4 dataset corresponds to the household rather than the individual. The *household income* is however, included (not in the baseline model) as a measure of class differences. The household income variable is coded 1-10, where 1 represents households with income corresponding to that held by 10 percent of households with lowest income (0-10%); and 10 represents household with income corresponding to that held by top 10 percent of households. The summary statistics show that, although most Europeans belong to the middle class (median of 5), on average the residents could be described as upper middle class (mean of 5.29).

Some standard socio-economic and demographic variables are also included in the baseline model to control for the effects of those individual differences. These include the dummy variables: *female* for gender (equal to 1 if female and 0 otherwise); *ethnicity* (equal to 1 if the respondent belongs to an ethnic minority group and 0 otherwise); *citizen* (equal to 1 if the individual has citizenship status); and *citizen parents* (equal to 1 if both parents of the individual are citizens) which is added for sensitivity analysis. Table 4.5 shows that 55 percent of the respondents in the sample are female, 7 percent consider themselves from an ethnic minority, 97 percent are citizens of the respective survey countries and 84 percent have/had parents who are/were both citizens of the respective survey countries. Table A4.8 in the appendix provides more details on these variables. The general distributions of these variables do not reveal any obvious outliers that need to be taken into consideration regarding the potential bias in estimates.

To control for the effect that labour market concerns have on the individual's immigra-

tion policy preference, the individual's subjective estimate of the *Unemployment Rate* is also included in the regressions. The argument is that, if the individual perceives a high unemployment rate in their country they would most likely want to limit immigration in order to reduce the labour market competition (especially if they are unemployed). Even if they are in a stable employment they would still have an incentive to prefer restrictive immigration policies in order to avoid or reduce the cost (tax burden) associated with further unemployment that might come as a result of more immigration. The statistics show that the majority of people estimate the unemployment rate in their country to be between 10-14 percent (See Figure A2.2 in the appendix) although the mean perception of unemployment is between 20-24 percent. The high perception of the unemployment rate could be largely due to the recession that was being experienced in most European countries in 2008/09. Table A4.9 in the appendix indicates that Switzerland had the lowest average perceived *unemployment rate*, between 5-9 percent, followed by Norway, Denmark, Czech Republic, Cyprus, Finland and Sweden where the subjective estimate of the *unemployment rate* averaged between 10-14 percent. Hungary, Turkey and Ukraine had the highest average subjective estimates of the *unemployment rate* (30-34 percent).

The individual's subjective estimate of the current immigrant population in their country *(Current Immigration level)* is also included in the regressions. This controls for the immigration policy that already exits in the country as well as the individual's personal assessment of how well the immigration policy is being enforced. This is an important variable that directly influences the individual immigration policy preferences. For this variable, respondents are asked to provide their subjective estimate of the proportion of people of working age born outside the country. On average people estimate that about 10-14 percent of the people of working age in their country are immigrants. This realistic subjective estimate indicates that people are not prejudiced or biased in their subjective estimates of the immigrant populations in their countries. The detailed statistics (appendix Table A4.9) shows that low subjective estimates of immigrant populations, 5-9 percent, are reported in Slovakia, Czech Republic, Bulgaria, Finland, Poland, Hungary and Romania; while high estimates are reported in Israel (25-29 percent) and the UK (20-24 percent).

To control for the effect of the political views of individuals, the variable *Right-wing Political inclination* is also included in the regressions. This is envisaged to take care of any bias in the individual's opinions and preferences that may be a result of their political affinities. In general the majority of people are reported to be inclined neither to the left or right, politically. To control for the effect of any differences in individual openness as a result of foreign experience and contact, a variable that captures if the individuals has ever *worked abroad* for more than six months is included in the regressions.

Table 4.6 provides the summary statistics for the variables that may satisfy the exclusion restriction placed on the bivariate ordered probit model to improve identification. It is envisaged that individual views about the prevalence of benefit fraud and the efficiency of tax authorities has an impact on the $SWSEs$ but has no direct effect on $IMPP$. For example, it is expected that individuals are more likely to think immigrants receive more benefits than they contribute in taxes if they believe that the tax and social welfare authorities are inefficient. However, there is little direct reason to expect an individual to be more likely to prefer stricter immigration policies if they believe that the tax and social welfare authorities are inefficient. To capture the respondent's views on the efficiency of the social welfare authorities, the variable *Benefit fraud* is used. This measures the extent to which respondent's agree or disagree that many people manage to obtain benefits and services to which they are not entitled. The categorical variable, therefore, takes the values: 1= agree strongly, 2 = agree, 3 = neither agree nor disagree, 4 = disagree and 5 = disagree strongly. *Efficiency of tax authorities* deals with how efficient respondents think the tax authorities are at things like handling queries, avoiding mistakes and preventing fraud. It is measured on a scale of 0 to 10, where 0 represents extremely inefficient while 10 is extremely efficient. Table 4.6 shows that people generally tend to hold the view that both the tax and social welfare authorities are inefficient.

Another variable used as an instrument is *Pension Sustainability*, which measures the extent to which individuals think the current pension system will be affordable in 10 years time. It is recorded on a scale of 1-3, where 1 means the respondent thinks that the country will not be able to afford the present level of old age pension; 2 means it will be able to afford the present level but not to increase it; and 3 means the country will be able to afford to increase the present level of old age pension. This variable fits in well with the aims of the chapter. It measures the individual concerns about the sustainability of their old age pension systems which could (all things remaining constant) influence their views on immigration and how it might affect the sustainability of the pension systems. The majority of people believe that the country will be able to afford the present level of pensions but not any increases. This indicates that most of the respondents are not aware of the impending public pension crises.

Table 4.5: Summary Descriptive Statistics for Independent Variables

Explanatory Variable	Mean (Std dev)	Median	Min	Max	Observ.
Age-group: where 1=young (15-40years), 2=middle-aged (41-65 years) and 3=old and retired (above 65 years)	1.81 (0.74)	2	1	3	54791
Age	47.53 (18.52)	47	15	123	54791
Skilled: 1 if respondent's has post-secondary education level or above; 0 otherwise	0.3 (0.46)	0	0	1	54841
Education: Where 0= not completed primary school;1= primary or basic; 2= lower secondary; 3=upper secondary; 4=post secondary, non-tertiary; 5=Tertiary and 6= second stage tertiary	3 (1.42)	3	0	6	54841
Years of schooling	11.87 (4.16)	12	0	48	54478
Household Income	5.29 (2.79)	5	1	10	39,563
Citizen: 1 if citizen, 0 otherwise	0.97 (0.18)	1	0	1	54943
Parents Citizen: 1 if both parents are citizens; 0 otherwise	0.84 (0.37)	1	0	1	54922
Ethnic Minority: 1 if respondent belongs to an ethnic minority group; 0 otherwise	0.07 (0.25)	0	0	1	53843
Female: 1 if respondent is female; 0 otherwise	0.55 (0.5)	1	0	1	54958
Unemployment Rate: measured on a scale of 1-11, where 1= up to 4%, 2=up to 10%...11=50% or more of people of working age unemployed and looking for work.	5.16 (3.06)	4	1	11	49190
Current Immigration Level: proportion of people of working age born outside country; measured on a scale of 1-11, where, 1= up to 4%, 2= up to 9%...11=50% and above	3.79 (2.58)	3	1	11	44486
Right-wing Political Inclination: 0 if respondents place themselves on the left, 10 if they place themselves on the right-wing political scale.	5.2 (2.3)	5	0	10	45948
Worked Abroad: 1 if respondent has done paid work in another country for more than 6 months in the last 10 years; 0 otherwise	0.05 (0.23)	0	0	1	46991
Retired: 1 if respondent is retired; 0 otherwise	0.26 (0.44)	0	0	1	54988
Pro-immigration culture: measured on a scale from 0=immigrants undermine cultural life to 10 = immigrants enrich cultural life.	5.35 (2.61)	5	0	10	51801

Table 4.6: Summary Statistics for Instruments

Exclusion Restriction (Instruments)	Mean (Std dev.)	Median	Min	Max	Observ.
Pension Sustainability: 1 if respondent thinks the current pension system will not be sustainable in next 10 years time; 3 otherwise	1.83 (0.72)	2	1	3	49117
Efficiency of tax authorities: On a scale of 0 to 10 this measures how efficient respondents think the tax authorities are at things like handling queries, avoiding mistakes and preventing fraud. 0= extremely inefficient; 10= extremely efficient.	5.08 (2.36)	5	0	10	48448
Benefit fraud (do you agree that many people manage to obtain benefits and services to which they are not entitled?): scaled 1-5 where 1= agree strongly; 5 = disagree strongly.	2.36 (0.97)	2	1	5	51492

134

4.6 Results

This section presents and discusses the results from a series of simultaneous bivariate ordered probit regressions, based on the empirical model in section 4.5.2, that test the empirical hypotheses. Country dummies are included for all the countries except Germany (country with the largest sample size) in all the full sample regressions to control for any country-specific effects that may influence respondents' views and attitudes towards immigration. The coefficients of the country dummies are not shown in the results tables due to lack of space. In addition, the appropriated weights (design weight and population size weights) and robust standard errors are applied to all estimates.

4.6.1 Welfare State Effects and Attitudes towards Immigration

Starting with the test statistics, the results in Table 4.7 show that both baseline models (1 and 2) are well fitted with the Wald tests for overall significance (which tests the hypothesis that the explanatory variables are equal to zero) - rejected at the 1 percent significance level. Model 1 uses $SWSE(1)$ as the dependent variable in equation (4.11), while model 2 uses $SWSE(2)$ as the dependent variable in equation (4.11). The table indicates that rho (ρ) - the correlation of errors in the two equations - is significantly different from zero for model 1 (-0.423***) and model 2 (-0.581***). This confirms that the errors terms of the two equations, (2.11) and (2.12), are jointly correlated (for both models 1 and 2). Hence the simultaneous bivariate ordered probit method is justified as opposed to two univariate ordered probit estimations. In addition to the errors being jointly correlated, the Wald test of independent equations is also rejected for both models 1 and 2 at $\chi^2(1) = 137$;p-value=0.0000 and $\chi^2(1) = 227$;p-value=0.0000 respectively. These tests strongly confirm the expected dependence between equations (2.11) and (2.12), thus providing further validation of the adopted method.

The first key result in Table 4.7 is the gamma (γ) coefficient which estimates the correlation between the individuals' subjective view of the welfare state effects of immigrants and their immigration policy preferences or simply the relationship between the $SWSE$ and $IMPP$. Gamma is the coefficient in equation (4.12) that corresponds to $SWSE(1)$ for model 1 and $SWSE(2)$ for model 2. The reported gammas, 0.648 and 0.679 for Models 1 and 2 respectively are identical. This indicates a strongly significant (at 1 percent level) and positive relationship between $SWSE$ and $IMPP$. This means that, for any given individual (controlling for individual characteristics), the propensity to prefer to "allow many" immigrants to come and

Table 4.7: Baseline Results from Simultaneous Bivariate Ordered Probit Regressions

	Model 1		Model 2	
Observations	27629		28350	
Log Pseudo Likelihood	-86730.4		-71625.9	
Wald Test of overall significance of model:	$\chi^2(39) = 2730$		$\chi^2(39) = 6906$	
P-value	0.000		0.000	
Rho (ρ)	-0.423***		-0.581***	
[Standard Error]	[0.032]		[0.029]	
Wald Test of independent equations:	$\chi^2(1) = 137$		$\chi^2(1) = 227$	
P-value	0.000		0.000	
Gamma (γ) [Standard Error]	0.648***		0.679***	
	[0.028]		[0.026]	

Explanatory Variables	SWSE(1)	IMPP	SWSE(2)	IMPP
Age-group	-0.042***	-0.136***	-0.028***	-0.119***
	(0.009)	(0.010)	(0.009)	(0.010)
Skilled	0.141***	0.150***	0.080***	0.156***
	(0.013)	(0.017)	(0.014)	(0.016)
Citizen	-0.364***	0.017	-0.140***	-0.091**
	(0.039)	(0.044)	(0.038)	(0.041)
Ethnic Minority	0.105***	-0.023	0.014	0.038
	(0.030)	(0.033)	(0.031)	(0.034)
Female	0.012	0.048***	0.021	0.033**
	(0.013)	(0.013)	(0.013)	(0.013)
Unemployment Rate–subjective estimate	-0.012***	-0.008***	0.014***	-0.024***
	(0.003)	(0.003)	(0.003)	(0.003)
Current Immigration Level–subjective estimate	-0.013***	-0.003	-0.019***	0.004
	(0.003)	(0.003)	(0.003)	(0.003)
Right-wing Political Inclination	-0.023***	-0.038***	-0.032***	-0.024***
	(0.003)	(0.004)	(0.003)	(0.004)
Worked Abroad	0.093***	0.001	-0.021	0.070**
	(0.028)	(0.030)	(0.029)	(0.029)
Instrumental Variables				
Pension System Sustainability–subjective view	0.097***		0.078***	
	(0.009)		(0.008)	
Efficiency of Tax Authorities	0.034***		0.005*	
	(0.003)		(0.003)	
Benefit Fraud	0.165***		0.159***	
	(0.007)		(0.007)	

Table 4.7: (continued)

Estimated Cut Points	SWSE(1)	IMPP	SWSE(2)	IMPP
Cut11 and Cut 21	-1.389***	-1.586***	-0.324***	-1.423***
	(0.061)	(0.071)	(0.058)	(0.071)
cut12 and Cut 22	-1.016***	-0.496***	0.989***	-0.472***
	(0.061)	(0.061)	(0.058)	(0.055)
cut13 and Cut 23	-0.554***	0.663***	1.628***	0.548***
	(0.061)	(0.054)	(0.059)	(0.047)
cut14	-0.085		2.731***	
	(0.061)		(0.060)	
cut15	0.290***			
	(0.061)			
cut16	1.254***			
	(0.061)			
cut17	1.584***			
	(0.061)			
cut18	1.994***			
	(0.062)			
cut19	2.480***			
	(0.063)			
cut110	2.806***			
	(0.065)			

Robust standard errors in brackets. * significance at 10%; ** significance at 5%; *** significance at 1%.
All regressions include country dummies for all countries except Germany (largest sample);
coefficients for countries not reported in this table

live in their country increases significantly if they believe that immigrants contribute more in taxes than they receive in social benefits. Similarly, for model 2, the likelihood of choosing to have a higher number of immigrants, increases for any individual who "strongly disagree" that social benefits and services encourage people from other countries to come and live in their country, *ceteris paribus*.

This evidence supports the first hypotheses of this study, indicating that welfare state motives are significant determinants of individual attitudes towards immigration. The evidence also supports the notion that the two phenomena are jointly determined, meaning that individual characteristics shapes both their welfare state concerns and their attitudes. This result is not directly comparable to results from any previous known studies as the variables used to measure the welfare state concerns are exclusive to the ESS4 dataset.

4.6.2 Individual Age and Skill Levels

The age-group variable is negative and strongly significant (at 1 percent level) in its relationship with $SWSE(1)$ and $SWSE(2)$ as well as $IMPP$ in both models 1 and 2. This indicates that being above 65 years old decreases the likelihood (by 0.042) that an individual believes that immigrants contribute much more than they receive from

the welfare state and also decreases the likelihood (by 0.136) of choosing to "allow many" immigrants. In other words, individuals aged above 65 years, are more likely to believe that immigrants receive much more than they contribute to the welfare state and are also more likely to prefer stricter immigration policies as compared to individuals who are young (15-40 years) or middle-aged (41-65).

The negative *age-group* coefficient for $SWSE(1)$ and $SWSE(2)$ could be interpreted as the age effect, as a result of welfare state concerns, on individual attitudes towards immigration. Thus, the negative coefficient reflects the effect that age has on the individual's attitude through its effect on welfare state concerns. As outlined in section 4.4.1, this age effect mainly stems from the individual's social security income maximisation concerns. This evidence therefore supports the hypothesis that old and retired individuals have a more anti-immigration attitude than the young and middle aged individuals due to social security considerations (holding all other variables at their average values). An important point to note is that, the negative age-group coefficient for $IMPP$ is larger because it also captures other age driven restrictive tendencies which may not be associated with the welfare state concerns. For instance, the old generation might choose restrictive policies simply because they are more conservative and hence not in favour of the societal changes that might be associated with immigration.

The negative age coefficient for $IMPP$ (see Table A4.11 and A2.12) is consistent with findings in previous studies. However, this study provides a more structured (theory led) interpretation of the evidence. Model 2 confirms this result with evidence that individuals aged above 65 years are more likely to "strongly agree" that the social benefits and services encourage people from other countries to come and live in their country.

With regard to skill levels of individuals, the regressions report highly significant positive coefficients for the *skilled variable*. This means that, holding all other individual characteristics constant (at their sample means), the likelihood that an individual thinks immigrants contribute much more than they receive from the welfare state increases (by 0.141) if they are skilled. The likelihood of choosing to "allow many" immigrants also increase if the individual is skilled (highly educated). Similarly, the likelihood that an individual will "disagree" to the statement that "social benefits and services encourage immigrants to come and live in their country" increases if the individual is skilled or highly educated.

This, consistent with the model presented in section 4.4.2 (Krieger, 2004), the evidence indicates that skilled individuals have a pro-immigration attitude partly because they believe that immigrants have a positive effect on their welfare state outcomes (taxes

and social security contributions). However, as agued by Hainmueller and Hiscox (2007), this positive relationship between skills (education) and pro-immigration attitudes might also be explained by the fact that education means greater tolerance and improved understanding of foreign cultures as well as a taste for cosmopolitanism and cultural diversity. Hainmueller and Hiscox (2007) found that people with higher education and occupational skills are more likely to favour immigration regardless of the skill attributes of the potential immigrants. This finding was not consistent, however, with their predictions based on the factor proportions labour model and the Heckscher-Ohlin trade model. Hence they concluded that individual attitudes towards immigration in Europe have little to do with labour market competition. This study therefore complements their findings with evidence that, while labour market competition alone does not explain skilled individual attitudes towards immigration in Europe, welfare state concerns play a significant role.

The results for skilled individuals in this study are, nevertheless, contrary to Facchini and Mayda (2009), who found that high income individuals are more likely to oppose immigration in countries where immigration is unskilled and considered a net burden to the welfare state. The difference may be because their measure of "countries where immigration is unskilled" may not be accurate as they themselves admit. Even though this study does not define the individual skills attributes by income, the results do not change when the household income variable is introduced. This is shown later in the robustness tests.

Table 4.8: Marginal effects after Simultaneous Ordered Probit (Model 1)

| | A | | B | | C | |
	Predict SWSE(1)=1	Predict IMPP=4	Predict SWSE(1)=1	Predict IMPP=4	Predict SWSE(1)=1, IMPP=1	Predict SWSE(1)=1, IMPP=1
Overall prediction	0.0392	0.101	0.0428	0.074	0.0104	0.0139
Age-Group	0.0035*** (0.0007) [1]	-0.031*** (0.002) [1]	.0038*** (.0008) [2]	-0.024*** (0.001) [2]	0.0031*** (0.00021) [1]	0.0039*** (0.00033) [2]
Skilled	-0.0105*** (0.0010) [0]	0.054*** (0.003) [0]	-0.0113*** (0.0011) [0]	0.043*** (0.003) [0]	-0.0048*** (0.00032) [0]	-0.0062*** (0.00039) [0]
Citizen	0.0223*** (0.0018) [1]	-0.048*** (0.009) [1]	0.0242*** (0.0019) [1]	- 0.038*** (0.008) [1]	0.0068*** (0.00049) [1]	0.0089*** (0.00062) [1]

Standard Errors in brackets; Reference points for calculated marginal effects in square brackets; sample means are used as reference points for all other variable; Marginal effects (dy/dx) reported for Skilled and citizen represents a discrete change of dummy variable from 0 to 1.

To express the magnitudes of the effects that both the individual's *age-group* and skills level have on their attitudes towards immigration in a more meaningful way, the marginal effects for age-group, *skilled* and *citizen* are calculated and reported in Table 4.8 for model 1. The calculated marginal effects (discrete change in dummy variables) reported in the columns under A of Table 4.8 indicate that there is a 3.92

percent overall unconditional probability that a young (15-40 years old), unskilled citizen will conclude that immigrants receive much more than they contribute to the welfare state, $SWSE(1) = 1$, all others remaining constant at the sample means. This probability increases by 0.35 percent if the individual is middle aged (41-65 years old), but falls by 1.05 percent if the individual is skilled. For the individual's immigration policy preference, there is a 10.1 percent overall probability that a young, unskilled individual will choose to "allow many" immigrants to come and live in there country. This probability is increased by 5.4 percent if the individual is skilled and reduced by 3.1 percent if the individual is middle aged. The columns under B show the predicted marginal probabilities calculated with middle-aged, unskilled citizens as the reference points with all other variables at their sample means. These marginal effects show that there is a 4.28 percent overall probability that a middle-aged, unskilled citizen will conclude that immigrants receive much more than they contribute to the welfare state. This overall probability increases by 0.38 percent if the individual is old and retired (above 65 years old) and reduces by 1.13 percent if the individual is skilled. In addition, the overall probability that a middle-aged, unskilled citizen will choose it "allow many" immigrants is 7.4 percent which reduces by 2.4 percent if the individual is old and increases by 4.3 if the individual is skilled. Columns under C reports the conditional probabilities for choosing $SWSE(1) = 1$ and $IMPP = 1$ using middle-aged, unskilled citizen as the individual reference points and while all other variables are set to the sample means. The results in the last column, C, indicate that there is a 1.39 percent overall probability that an unskilled middle-aged citizen, having decided that immigrants receive much more than they contribute to the welfare state, will also choose to allow no immigrants to come and live in there country. This probability increases by 0.39 percent if the individual is old and retired but reduces by 0.62 percent if the individual is skilled or highly educated.

The above marginal effects confirm that there is a welfare state concern-driven negative relationship between age and pro-immigration attitudes. Thus, all else remaining constant, the results indicate that the probability of having a pessimistic view regarding the effect of immigrants on the welfare state ($SWSE(1)$) increases as the individual moves from young to old age (retirement). It increases from 3.92 to 4.28 percent as the individual moves from young to middle aged and from 4.27 to 4.66 percent as the individual moves from middle-aged to old age and retirement. This means people above the age of 65 years are 0.39 percent more likely to think that immigrants receives much more than they contribute to the welfare state. In terms of immigration policy preferences, the marginal effects indicate that young individuals are 2.7 more likely than the middle-aged (from 10.1 minus 7.4 percent) to choose to "allow many" immigrants to come and live in their countries, all else remaining constant. Whereas, the middle-aged individuals are 2 percent more likely than old individuals to choose to "allow many" immigrants to come and live in their country.

Looking specifically at how welfare state concerns affect the individual's immigration policy preferences, the marginal effects under columns C of Table 4.8 indicate that, as a result of their welfare state concern, young individuals are 0.35 percent (1.39 minus 1.04 percent) less likely to choose a restrictive (zero) immigration policy than middle aged individuals. The middle-aged individuals are 0.43 percent less likely than old to choose a strict (zero) immigration policy. These findings apply more to the situation where the potential immigrants are expected to be predominantly unskilled. The marginal effects also confirm that skilled individuals are more pro-immigration than unskilled individuals and the pro-immigration attitudes of skilled individuals can partially be explained by their welfare state concerns even when the potential immigrants are perceived as predominantly unskilled.

4.6.3   Other Individual Characteristics

Apart form the main explanatory variables, Table 4.7 also reports the results for the control variables used in the baseline regressions. These results show that natives or *citizens* are more likely (than non-citizens) to think that immigrants receive more than they contribute to the welfare state and are also more likely to "strongly agree" that social benefits and services encourage people from other countries to come and live in their country. This is reflected in the negative citizen coefficient for $SWSE(1)$ and $SWSE(2)$. However, with regard to the effect of citizenship on individual immigration policy preferences, the results differ between models 1 and 2.

The results for model 1 indicate that being a citizen does not affect the likelihood of choosing to "allow many" immigrants to come and live in one's country since the coefficient on citizen is statistically insignificant. This seems to suggest that, the full effect of citizenship on one's attitude towards immigration may be based on welfare state concerns. Hence, once the citizen effects on $SWSE(1)$ are accounted for, citizenship status does not significantly influence individual immigration policy preferences. This corresponds to the notion that, the welfare state is a symbol which is based on the political provision of welfare in exchange for the internal loyalty of citizens. Bommes and Geddes (2000) argue that loyalty and welfare state provision are two dimensions that structure the relations between migrants and the state, where migrants become viewed as a potential problem due to questions about their political loyalty or because of welfare claims (or both). However, in contrast, model 2 shows that citizens are less likely to prefer an open immigration policy. Thus, the effect of citizenship extends beyond welfare state concerns.

The results for the *ethnic minority* variable are weak and mixed in terms of signifi-

cance. For instance, the results show that the likelihood of thinking that immigrants contribute more than they receive from the welfare state increases if the individual belongs to an ethnic minority. However, the individual's ethnic minority status has no significant impact on immigration policy preferences or $SWSE(2)$. This does not fully support the theory of marginality outlined in Fetzer (2000). The theory of marginality states that the experience of being, one's self, marginalised breeds sympathy with other marginalised people in general, even if they do not belong to one's own group. According to Fetzer, having a marginality-producing characteristic would (all else being equal) create greater support for the welfare and rights of other marginalised groups. Given that immigrants are in some ways a marginalised group it is expected that people who consider themselves as being in an *ethnic minority* (marginalised group) would be in favour of immigration. The results here, however, show that being from an ethnic minority group gives one a positive opinion about the effect of immigrants but does not necessarily increase one's support for more immigration. This could be due to the fact that only a small proportion of individuals (7 percent) in the entire sample consider themselves as belonging to an *ethnic minority* group hence there may not be enough data to fully highlight the effect of the ethnic minority variable.

Gender has no significant impact on the individual's subjective view of the welfare state effects of immigrants, although being female increases the likelihood of choosing to "allow many" immigrants. Thus being a female or male does not impact on one's view of how immigrants affect one's welfare state outcomes such as taxes and social benefits. However, females may feel they are a marginalised group; hence the support for immigration as they might have some sympathy for the welfare of the marginalised group of immigrants. Note that even though a larger proportion (55 percent) of the entire sample is female, they may still feel marginalised (or less powerful), for instance, in the labour market and in socio-political circles.

Individuals who perceive that the rate of unemployment in their country is high are less likely to think immigrants contribute more than they receive from the welfare state and are also less likely to choose to "allow many" to come and live in their country. However, when the question on the welfare state effect of immigrants is changed to $SWSE(2)$, the results show that individuals who have a high subjective estimate of the rate of unemployment in their country are more likely to disagree that social benefits and services encourage people from other countries to come and live in their country. Thus, individuals who feel that the unemployment rate in their country is very high may also feel that immigrants are the cause of the high unemployment or that immigrants come and take the available jobs hence are less likely to agree that immigrants come because of social benefits and services. This indicates that, labour market considerations, where the proportion of current immigrants is perceived as

142

high, may also be important in shaping attitudes towards immigration in Europe.

As expected, individuals who think the proportion of immigrants in the country is high are less likely to think that immigrants contribute more than they receive from the welfare state. They are also less likely to disagree that social benefits and services encourage immigrants to come and live in their country. However the current level of immigration does not seem to be a significant determinant of the individual's immigration policy preference. This is a surprising result as it suggests that an individual's immigration policy preference is not influenced by their perception of the current level of immigration or the existing immigration policies. But it is possible, though, that all the effect of the individual's perception of the current level of immigration is reflected in their welfare state concerns. Thus, possibly, once the effect of the individual's perception is accounted for in the equations for $SWSE(1)$ and $SWSE(2)$, the individual's immigration policy preference may no longer be affected by their perception of the current level of immigration or the existing immigration policies.

As expected, having a *right-wing political inclination* reduces the propensity for an individual to think that immigrants contribute more than they receive from the welfare state and also reduces the propensity of being pro-immigration. This finding is confirmed in model 2, where the likelihood to "Strongly disagree" that social benefits and services encourage immigrants to come and live in the country, is reduced if the individual has a right-wing political inclination. The effect of having worked abroad for more than six months in the last ten years is very weak. The results for Model 1 in Table 4.7 show that the likelihood of an individual concluding that immigrants contribute much more than they receive from the welfare state, increases if the individual has *worked abroad* for more than six months in the last ten years but the variable has no effect on IMPP. On the other hand, for Model 2, there is a positive effect on $IMPP$ but no significant effect on $SWSE(2)$. The weak and mixed results may be due to the fact that only a small size of the sample (5 percent) of individuals has worked abroad for more than six months in the last ten years.

4.6.4 Instruments and cut points (threshold parameters)

The next set of results to be discussed corresponds to the exclusion restriction variables and estimated cut points. The exclusion restriction variables are the three variables that are expected to determine $SWSE(1)$ and $SWSE(2)$ but not $IMPP$. The first variable is Pension system sustainability, which measures the extent to which the individual thinks the current pension level in their country will be affordable in

143

ten years time. The results indicate a positive relationship between pension system sustainability and $SWSE(1)$ as well as $SWSE(2)$. This means that individuals who believe that the country will be able to afford to increase the level of the current pension in their country also believe that immigrants contribute much more than they receive from the welfare state. Such individuals are also the ones who are most likely to "disagree strongly" that social benefits and services encourage immigration in their country. This does not seem to support the view that individuals who are conscious about the impending pension sustainability crises are more likely see the potential benefits of immigrants on the welfare state. Rather, it shows that individuals who are optimistic about the sustainability of the pension system are also more likely to be optimistic about the effect of immigrants on the welfare state in general.

The second variable is *Efficiency of Tax Authorities* which measures the extent to which the individual thinks the tax authorities are efficient in dealing with things like handling queries, avoiding mistakes and preventing fraud. The results for this variable indicate that people who think the tax authorities are extremely efficient are more likely to also think that immigrants contribute much more than they receive from the welfare state. They are also more like to "disagree strongly" (though weakly) that social benefits and services encourage people from other countries to come an live in their country. Thus, the confidence that such individuals have in the tax authorities does not allow to them to see immigrants as people who are simply taking advantage of the benefits from the welfare state.

The third variable used as an instrument is *Benefit Fraud,* which measures the extent to which an individual agrees or disagrees that it is easy to obtain benefits to which one is not entitled. The results show positive relationship between Benefit Fraud and $SWSE(1)$ and $SWSE(2)$. This means that those who disagree strongly with the statement that it is easy to claim benefits to which one is not entitled are more likely to also "disagree strongly" that social benefits and services encourages immigration in their countries. Those individuals are also more likely to think that immigrants contribute much more than they receive from the welfare state. Thus, it can be summarised that believing that the tax and social welfare authorities are efficient (in preventing fraud) increases the likelihood that an individual will have an optimistic view regarding the effects of immigrants on the welfare state.

Sajaia (2008) indicates that at least one weak instrument or exclusion restriction is sufficient for identification in the full information simulated maximum likelihood estimates of the bivariate ordered probit model. However, given that the standard tests (Anderson-Rubin Test, Sargan test, etc) for over-identifying restrictions are not supported with the bioprobit command in Stata, the limited information instrumental variable regression estimator is used to generate tests for the validity of the above

Table 4.9: Tests For Validity of Instruments			
Endogenous Variable	Under-identification	Weak identification	Cragg-Donald Wald F statistic
SWSE(1)	AP χ^2(3): 944.09 P-Value: 0.0000	AP F(3, 27588): 314.23 P-Value: 0.0000	314.23
SWSE(2)	AP χ^2(3): 592.96 P-Value: 0.0000	AP F(3, 28406): 197.37 P-Value: 0.0000	197.37

instruments. The ivreg2 command (Baum et al, 2002) provides a number of useful tests to help judge the validity of instruments. They include the Anderson (1951) canonical correlations test for under-identification; the Angrist-Pischke (AP) multivariate F test of excluded instruments; and the Cragg-Donald Wald F statistic for weak identification. It also provides the Stock-Yogo weak identification test critical values.

The benchmark model is re-run using the IV method and the test results for the instruments are reported in Table 4.9. The table reports the Angrist-Pischke (AP) F and chi-squared tests as well as the Cragg-Donald statistic. All three statistics confirm that the three instruments (*Pension system sustainability, Efficiency of Tax Authorities and Benefit Fraud*) are sufficiently strong in both models. Thus, the F statistic is sufficiently greater than 10 and the hypotheses of under-identification and weak identification are both rejected.

The estimated cut points (threshold parameter δ and μ) named cut11-cut110 and cut21-cut23 for the dependent variables shown in the bottom section of Table 4.7 provide an insight of how strongly people feel about the welfare state effects of immigrants and how strongly they feel about their immigration policy preferences. According to Daykin and Moffat (2002) the estimated cut points also give a reflection of how well respondents understood the survey questions for the relevant dependent variable.

The estimates for cut11-cut110 in model 1 represent cut points for $SWSE(1)$, while cut21-cut23 represent the thresholds for $IMPP$. The results show that cut11-cut110 are not widely dispersed from each other but are not particularly tightly bunched to each other in the middle of the distribution. This indicates that, in general, respondents are less keen to express strong views about whether they think on balance immigrants receive more than they contribute or contribute more than they receive from the welfare state. Instead, the slightly larger difference between cut15 and cut16 is an indication that respondents tend to think that on balance immigrants neither contribute more than they receive nor receive more than they contribute to the welfare state in their country. This matches the distribution shown in Figure 2.2 in the previous section. With regards to how respondents feel about their immigration policy preferences, cut21-cut23 are slightly more widely spread from each other indicating that respondents are also less keen on expressing extreme preferences about the

145

number of immigrants that should be allowed to come and live in their country. Similarly for $SWSE(2)$ in model 2, cut11-cut14 are slightly more widely dispersed from each other, indicating the presence of strong views but not necessarily extremist views. Reconciling these estimates with Figure 2.3 confirms that majority of people "agree" (though not "strongly agree") that social benefits and services encourage people from other countries to come and live in their respective countries. Apart from being an indication that the variables have a somewhat normal distribution after accounting for other effects on the responses, the estimated cuts points from the regressions also confirm that in general the results are not driven by any extremist views in the data.

4.6.5 Household Income Effect and Cultural Considerations

The regressions in Model 1 and 2 are extended by adding two new variables, *Household Income* and *Pro-Immigration Culture*. These two variables are not included in the main regressions reported in Table 4.7 because of the potential threat of multicollinearity. For instance, household income may be related (at least in theory) to individual skills or education levels and in come cases to the age of the individual. Hence a case may be made against including household income in the benchmark model. As in some previous studies (Mayda, 2006; and Scheve and slaughter, 2001), the estimates in this study are reported with and without the income control, although in other studies (Hainmueller and Hiscox, 2007) income is included in the benchmark model.

Pro-Immigration Culture captures the individual's subjective view of how the cultural life in their country is affected by immigrants. Respondents are asked to rate on a scale of 0 to 10 whether they think the cultural life in their respective countries is generally undermined or enriched by immigrants. However, their responses to this may be determined by age, level of education and other individual characteristics that also determine their immigration policy preferences hence it is reasonable to show the results with and without the cultural effects control. *Household Income* is expected to influence both the individual welfare state considerations and their immigration policy preferences however *Pro-Immigration Culture* is only expected to influence the individual's immigration policy preference and not their concerns about how immigrants affect their welfare state outcomes.

Table 4.10 presents the results with additional controls taken into consideration in Model 3 and 4, where Model 3 corresponds to Model 1 with the additional controls and model 4 corresponds to Model 2 with additional controls. These new sets of results are, by and large, similar to the main results in Table 4.7, but with some notable

146

	Model 3	Model 4
Observations	22,097	22,610
Log Pseudo Likelihood	-67480	-54695.81
Wald Test of overall significance of model:	$\chi^2(37) = 2122.51$	$\chi^2(37) = 5364.39$
P-value	0.000	0.000
Rho (ρ)	-0.311	-0.410
[Standard Error]	(0.069)	(0.037)
Wald Test of independent equations:	$\chi^2(1) = 50.19$	$\chi^2(1) = 93.69$
P-value	0.000	0.000
Gamma [Standard Error]	0.456***	0.488***
	(0.039)	(0.036)

Explanatory Variables	SWSE(1)	IMPP	SWSE(2)	IMPP
Age-group	-0.025**	-0.118***	-0.030***	-0.101***
	(0.010)	(0.011)	(0.010)	(0.011)
Skilled	0.120***	0.083***	0.083***	0.077***
	(0.016)	(0.018)	(0.016)	(0.018)
Citizen	-0.362***	0.040	-0.128***	-0.040
	(0.042)	(0.050)	(0.042)	(0.045)
Ethnic Minority	0.134***	-0.049	0.047	-0.002
	(0.034)	(0.038)	(0.034)	(0.038)
Female	0.021	0.046***	0.034**	0.035**
	(0.014)	(0.015)	(0.015)	(0.015)
Unemployment Rate–subjective estimate	-0.015***	-0.002	0.013***	-0.014***
	(0.003)	(0.003)	(0.003)	(0.003)
Current Immigration Level–subjective estimate	-0.013***	-0.001	-0.017***	0.003
	(0.004)	(0.004)	(0.004)	(0.004)
Right-wing Political Inclination	-0.027***	-0.035***	-0.036***	-0.025***
	(0.004)	(0.004)	(0.004)	(0.004)
Worked Abroad	0.091***	0.010	-0.034	0.067**
	(0.032)	(0.034)	(0.032)	(0.034)
Household Income	0.012***	0.003	-0.003	0.010***
	(0.003)	(0.003)	(0.003)	(0.003)
Pro-immigration Culture		0.177***		0.182***
		(0.005)		(0.005)
Instrumental Variables				
Pension System Sustainability–subjective view	0.094***		0.091***	
	(0.010)		(0.010)	
Efficiency of Tax Authorities	0.035***		-0.001	
	(0.004)		(0.003)	
Benefit Fraud	0.162***		0.175***	
	(0.008)		(0.008)	

147

Table 4.9: (continued)

Estimated Cut Points	SWSE(1)	IMPP	SWSE(2)	IMPP
Cut11 and Cut 21	-1.353***	-0.615***	-0.329***	-0.498***
	(0.070)	(0.076)	(0.067)	(0.070)
Cut12 and Cut22	-0.995***	0.632***	0.998***	0.685***
	(0.069)	(0.070)	(0.068)	(0.065)
Cut13 and Cut23	-0.522***	1.971***	1.640***	1.963***
	(0.069)	(0.069)	(0.068)	(0.067)
Cut14	-0.047		2.774***	
	(0.069)		(0.070)	
Cut15	0.329***			
	(0.069)			
Cut16	1.308***			
	(0.069)			
Cut17	1.639***			
	(0.070)			
Cut18	2.066***			
	(0.071)			
Cut19	2.558***			
	(0.072)			
Cut110	2.851***			
	(0.074)			

Robust standard errors in brackets. * significance at 10%; ** significance at 5%; *** significance at 1%.
All regressions include country dummies for all countries except Germany (largest sample); coefficients for countries not reported in this table.

exceptions. Firstly, there is a very small increase in the reported standard errors for nearly all the variables which is an indication that though multicollinearity might be present it is not a significant threat to the results. Secondly, all the coefficients for the main explanatory variables ($SWSE(1)$, $SWSE(2)$, *age-group* and *Skilled*) reduce slightly, though the direction of the relationships remains the same. Thirdly the insensitivities of some of the control variables are highlighted. For instance, *Citizen* which was significant in Model 2 for $IMPP$ becomes insignificant in Model 4, giving more strength to the argument that the effect of citizenship on the individual's attitude towards immigration may be fully embedded in welfare state concerns. Meaning that once this is accounted for, citizen and non-citizens may have similar preferences for immigration, all else remaining equal.

The *female dummy*, which as not significant for $SWSE(2)$ in model 2, becomes significant in Model 4 though, it remains positive. The individual's subjective estimate of the *Unemployment Rate* also loses its significance in Model 3 under $IMPP$. In addition, the effect of subjective assessments of the *Efficiency of Tax Authorities* becomes insignificant in model 4.

Table 4.10 shows mixed and inconclusive results for *household income* with significant and positive coefficients for $SWSE(1)$ in Model 3 and $IMPP$ in Model 4. Thus being from a high income household increases the likelihood that the individual thinks that immigrants contribute much more than they receive from the welfare state. However, *household income* does not seem to affect the individual's immigration policy preference

in the same model even though it is a significant determinant of *IMPP* in model 4. On the other hand, *Pro-Immigration Culture* is highly significant (at 1 percent level) and positively related to the IMPP in both Models 3 and 4. This highlights the importance of cultural considerations in individual attitudes towards immigration.

4.6.6 Cross-Country Differences in Attitudes towards Immigration

Having established the results for the full sample across all the countries, the next step is to find out if the above findings hold for each of the countries involved in the survey. To achieve this, the regressions above for models 1 and 2 are re-run for each of the countries involved and the selected results from those regressions are presented in Tables 2.10 and 2.11. The first important finding from the individual country regressions is that the empirical method, i.e. the bivariate ordered probit specification, adopted for the cross-country regressions does not fit the data for some of the countries involved. In particular, for some of the countries, rho (ρ) is not significantly different from zero and the Wald test of independent equations is not rejected. This means that, for those countries, the Subjective Welfare State Effects of immigrants $(SWSE)$ and Immigration Policy Preferences $(IMPP)$ are not jointly determined. This violates a key requirement for the use of the bivariate ordered probit model hence the method cannot be used for those countries.

In all, there are 19 countries where the bivariate ordered probit method works appropriately (with rho not equal to zero) for either model 1 or model 2 or both and 9 countries where the method is not appropriate for either model. The method fits the data appropriately for model 1 in 15 countries, model 2 in 15 countries and for both models 1 and 2 in 11 countries. Thus, if model 2 is considered as a robustness check on model 1 then one can conclude that the bivariate ordered probit method is robustly appropriate for the data in 11 countries. Table 4.11 brings together the results from the 11 individual country regressions where rho was significantly different from zero for both model 1 and model 2. Table 4.12 also presents selected results for the countries where the method is appropriate in either one of the models but not both. In addition, the results for the countries where the regressions produced an insignificant rho for either or both models is provided in the appendix (Table A4.10). For all the individual country results tables, only the coefficient estimates for the main explanatory variables: *age-group* and *skilled* as well as $SWSE(1)$ and $SWSE(2)$, represented by the gammas - are shown for the purpose of the discussions, although the regressions included all the control variables used in the cross-country regressions (with the exception of country dummies). As recommended by the ESS data providers, the individual country estimates are only weighted with the survey

design weight variable provided with the dataset.

The second noteworthy point from the individual country regressions is that the bivariate ordered probit method works very well and the results are stable for both models in countries that are normally referred to as western European (politically). All the countries in Table 4.11 where rho is not zero for both models 1 and 2 are western European countries, with the exception of Estonia. This might explain why the method fits well in those countries since western European countries are characterised by high-incomes, well developed generous welfare states, and relatively higher levels of both European and non-European immigration. Norway and Portugal are the only western European countries where the method fails based on the estimated rho coefficient.

The third interesting finding from the country results in both Tables 4.12 and 4.12 is that all the gamma coefficients are positive and highly significant, with exception of Greece which has an insignificant coefficient and Latvia which has a negative coefficient. This confirms, at the country level, the hypothesis that welfare state concerns are important determinants of individual attitudes towards immigration.

The fourth noticeable finding from the individual country regressions is that the effect of age and skill on the individual's subjective views regarding the impact of immigrants on the welfare state is weak and not robust. Whereas the effect on age and skill level on the individual's immigration policy preference is more consistent. For instance, column 3 in Table 4.11 shows that the age-group variable is only significant (with a negative sign) for Estonia and Switzerland when model 1 is implemented for each country. At the same time only Estonia and Switzerland have an insignificant coefficient for *age-group* in the corresponding results (column 5) for immigration policy preferences. The situation improves slightly when model 2 is implemented for each country. Column 9 shows that *age-group* is significant for Denmark, France, Netherlands, Sweden and The UK under $SWSE(2)$, in addition to being significant for all the countries under the corresponding $IMPP$ except Spain and Switzerland. A similar pattern of significant and insignificant results are shown for the *skilled* variable in Table 4.11, though this is significant in more countries than the case for *age-group*. The degree of sensitivity in the country results suggests that the size and significance of the effects (of age and skill levels) may be influenced by the structure of the individual country sample sizes hence further investigations are required.

Several reasons could be responsible for the lack of significance in the estimated correlations coefficients (rho) between the error terms of the two equations (4.11) and (4.12) for some of the countries. Assuming rho is correctly estimated for the countries where rho=0, then the absence of joint dependence for $SWSE$ and $IMPP$

could be due to country specific differences in demographic structures (population growth and ageing, skill and education level, immigrations levels etc); economic conditions (GDP and per capita income, growth rates, unemployment rates, tax levels etc); and existing policies (welfare state policies, immigration policies etc). Detailed country level studies beyond the scope this chapter are required to properly identify the specific determinants that drive the differences across countries. However the estimated rho coefficients and their significance may not be accurate due to sub-sample structures of the individual countries and not necessarily due the individual opinions and preferences.

The entire dataset is therefore split into six groups of countries based on the significance of rho from the individual country regressions. The simultaneous bivariate ordered probit regressions in model 1 and 2 are re-run for each of the groups and the results are presented in Table 4.13. This is done to help rule out the possibility that the estimated rho coefficients for the individual countries are merely due to the country sample sizes and structures.

The six groupings of the countries are described below. Group A consists of the 11 countries with stable results where rho is not zero for both models 1 and 2. This is the group the has the countries (typically western European countries) where the model fits best for both models 1 and 2. Hence the results for this group are expected to be the best. Group B consists of the 17 countries where the method does not fit the individual country data when any one or both of the models are implemented. This is the group where rho is zero in the individual country regressions for either model 1 or 2 or both. Group C consists of the 15 countries where rho is not zero in the individual country regressions for model 1, while Group D consist of the 13 countries where rho is zero in the individual countries for model 1. Group E represents the countries where rho is not zero while F represents the countries where rho is zero for model 2. Thus, for groups A and B, both model 1 and 2 regressions are repeated for the groups samples and for groups C and D only the model 1 regression is repeated while model 2 is only repeated for groups E and F. If the individual country estimates of rho are accurate one would expect the group estimates to reflect the collective estimates of the group members. This means that rho is expected to be significant only for groups A, C and E while insignificant for the others.

The interesting finding from the split sample regressions reported in Table 4.13 is that, irrespective of the individual country results, all the estimated rho coefficients are highly significantly different from zero. The method seems to work very well even for groups B, D and F (the groups that consist of countries where the method fails in the individual country regressions). All the group results are consistent with the three hypotheses of this chapter. Thus, all the gammas are positive and highly

Table 4.11: Selected Results from Individual Country Regressions where Rho is Significant ($\rho \neq 0$) in both Models 1 and 2

Country	Model 1 by Countries						Model 2 by Countries					
	SWSE(1)				IMPP		SWSE(2)				IMPP	
	Sample	Gamma SWSE(1)	Age-group	Skilled	Age-group	Skilled	Sample	Gamma SWSE(2)	Age-group	Skilled	Age-group	Skilled
	1	2	3	4	5	6	7	8	9	10	11	14
Belgium	1342	0.617***	-0.00019	0.130**	-0.175***	0.187***	1355	0.558***	-0.064	-0.122**	-0.107**	0.308***
		(0.122)	(0.040)	(0.060)	(0.043)	(0.071)		(0.134)	(0.042)	(0.061)	(0.046)	(0.063)
Denmark	1258	0.698***	-0.049	0.260***	-0.242***	0.069	1278	0.699***	-0.161***	0.329***	-0.153**	0.012
		(0.098)	(0.042)	(0.061)	(0.048)	(0.079)		(0.114)	(0.045)	(0.064)	(0.060)	(0.088)
Estonia	735	0.703***	-0.192***	0.072	-0.147	0.068	777	0.551**	0.052	0.008	-0.305***	0.113
		(0.216)	(0.054)	(0.081)	(0.128)	(0.091)		(0.241)	(0.056)	(0.079)	(0.078)	(0.084)
Finland	1843	0.968***	0.037	0.005	-0.237***	0.199***	1855	0.660***	0.010	0.155***	-0.280***	0.179**
		(0.067)	(0.035)	(0.054)	(0.053)	(0.072)		(0.110)	(0.038)	(0.055)	(0.044)	(0.072)
France	1583	0.877***	-0.044	0.235***	-0.139***	0.132*	1592	0.692***	-0.112***	0.081	-0.108**	0.314***
		(0.059)	(0.038)	(0.057)	(0.043)	(0.077)		(0.079)	(0.042)	(0.060)	(0.046)	(0.074)
Germany	1990	0.817***	-0.044	0.140***	-0.082**	0.162**	2056	0.691***	-0.023	0.090*	-0.099***	0.227***
		(0.094)	(0.035)	(0.047)	(0.038)	(0.068)		(0.082)	(0.037)	(0.051)	(0.038)	(0.059)
Netherlands	1389	0.525***	-0.003	0.037	-0.106***	0.283***	1415	0.755***	0.097**	-0.109**	-0.145***	0.277***
		(0.103)	(0.041)	(0.060)	(0.041)	(0.063)		(0.101)	(0.045)	(0.061)	(0.043)	(0.066)
Spain	1121	0.835***	-0.055	0.076	-0.086*	0.196**	1162	0.743***	-0.042	0.104	-0.081	0.169*
		(0.068)	(0.046)	(0.076)	(0.049)	(0.087)		(0.095)	(0.049)	(0.076)	(0.053)	(0.092)
Sweden	1404	0.922***	-0.001	0.220***	-0.152***	0.178**	1440	0.850***	0.083**	0.096	-0.195***	0.247***
		(0.058)	(0.039)	(0.060)	(0.044)	(0.087)		(0.055)	(0.042)	(0.061)	(0.043)	(0.080)
Switzerland	1207	0.610***	-0.075*	-0.002	-0.031	0.315***	1289	0.668***	-0.009	0.073	-0.055	0.269***
		(0.150)	(0.042)	(0.063)	(0.046)	(0.080)		(0.122)	(0.044)	(0.068)	(0.045)	(0.080)
UK	1785	0.734***	0.044	0.217***	-0.236***	0.098	1810	0.667***	-0.120***	0.020	-0.102***	0.232***
		(0.070)	(0.034)	(0.051)	(0.037)	(0.061)		(0.071)	(0.037)	(0.054)	(0.039)	(0.058)

Results for main explanatory variables selected from regressions of the full baseline models run for each country. Results for the control variables are not reported in this table for lack of space. Robust standard errors are shown in brackets. standard errors in brackets. * significance at 10%,** significance at 5%, *** significance at 1%.

Table 4.12: Selected Results from Individual Country Regressions where Rho is Significant ($\rho \neq 0$) in either Models 1 and 2

Country	Model 1 by Countries						Model 2 by Countries				
	SWSE(1)				IMPP		SWSE(2)			IMPP	
	Sample	Gamma	age-group	Skilled	Age-group	Skilled	Gamma	Age-group	Skilled	Age-group	Skilled
	1	2	4	5	5	6	7	8	9	10	11
Greece	1103	0.178	-0.002	0.128*	-0.092*	0.298***					
		(0.158)	(0.046)	(0.070)	(0.053)	(0.074)					
Hungary	619	0.665***	-0.025	0.189*	-0.076	0.190					
		(0.173)	(0.058)	(0.112)	(0.065)	(0.132)					
Latvia	1024	-0.390*	-0.147***	0.009	-0.249***	0.022					
		(0.203)	(0.044)	(0.066)	(0.048)	(0.070)					
Ukraine	439	0.585***	0.008	-0.046	-0.089	-0.096					
		(0.205)	(0.071)	(0.109)	(0.078)	(0.111)					
Cyprus	517						0.846***	0.012	0.107	-0.080	0.107
							(0.203)	(0.073)	(0.108)	(0.089)	(0.149)
Israel	1095						-0.918***	0.012	0.110	-0.033	0.129*
							(0.080)	(0.046)	(0.069)	(0.050)	(0.068)
Slovakia	939						0.921***	-0.150***	-0.040	0.104*	0.190*
							(0.121)	(0.053)	(0.086)	(0.063)	(0.102)
Slovenia	643						0.926***	0.060	0.101	-0.229*	0.087
							(0.150)	(0.058)	(0.097)	(0.123)	(0.169)

Results for main explanatory variables selected from regressions of the full baseline models run for each country. Results for the control variables are not reported in this table for lack of space. Robust standard errors are shown in brackets. standard errors in brackets. * significance at 10%; ** significance at 5%; *** significance at 1%.

153

Table 4.13: Simultaneous Bivariate Ordered Probit Regressions for Split Samples

	Group A		Group B		Group C	Group D	Group E	Group F
	Where Rho≠0 for both models in the individual country regressions		Where Rho=0 for both models in the individual country regressions		Where Rho≠0 for model 1 in the individual country regressions	Where Rho=0 for model 1 in the individual country regressions	Where Rho≠0 for model 2 in the individual country regressions	Where Rho=0 for model 1 in the individual country regressions
	Model 1*	Model 2*	Model 1*	Model 2*	Model 1*	Model 1*	Model 2*	Model 2*
Group Sample	16760	16029	10869	12418	18842	8787	19223	9224
Group Rho	-0.607***	-0.626***	-0.204***	-0.702***	-0.483***	-0.298***	-0.762***	-0.300**
	(0.046)	(0.046)	(0.078)	(0.120)	(0.043)	(0.091)	(0.047)	(0.125)
Wald Test of Overall significance	$\chi^2(22)$ =1646	$\chi^2(22)$ =2388	$\chi^2(27)$ =1250	$\chi^2(28)$ =1874	$\chi^2(26)$ =1774	$\chi^2(24)$ =1088	$\chi^2(26)$ =3505	$\chi^2(24)$ =1441
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Main Variables	swse1	swse2	swse1	swse2	swse1	swse1	swse2	swse2
Gamma	0.768***	0.691***	0.385***	0.658***	0.697***	0.463***	0.751***	0.366***
	(0.027)	(0.028)	(0.071)	(0.072)	(0.030)	(0.078)	(0.024)	(0.111)
Age-Group	-0.023*	-0.034***	-0.059***	-0.013	-0.031***	-0.051***	-0.036***	-0.007
	(0.011)	(0.013)	(0.014)	(0.014)	(0.011)	(0.016)	(0.011)	(0.016)
Skilled	0.125***	0.069***	0.138***	0.081***	0.121***	0.166***	0.076***	0.076***
	(0.017)	(0.018)	(0.023)	(0.022)	(0.016)	(0.025)	(0.016)	(0.025)
	IMPP	IMPP	IMPP	IMPP	IMPP	IMPP	IMPP	IMPP
Age-Group	-0.135***	-0.137***	-0.118***	-0.100***	-0.152***	-0.107***	-0.114***	-0.132***
	(0.012)	(0.013)	(0.016)	(0.017)	(0.012)	(0.018)	(0.012)	(0.017)
Skilled	0.194***	0.215***	0.103***	0.083***	0.177***	0.106***	0.172***	0.121***
	(0.021)	(0.021)	(0.027)	(0.027)	(0.020)	(0.032)	(0.019)	(0.030)

Results for main explanatory variables selected from regressions of the full baseline models run for each group of countries. Results for the control variables are not reported in this table for lack of space. Robust standard errors are shown in brackets. standard errors in brackets. * significance at 10%; ** significance at 5%; *** significance at 1%.

significant at 1 percent level, indicating that welfare state concerns are significant determinants of individual attitudes towards immigration. *Age-group* is negative and highly significant for all the groups except group B (model 2*) and group F. This indicates that, by and large, individual over 65 years old are more likely to be anti-immigration because of their welfare state concerns. Finally, *skilled* individuals are more likely to be more pro-immigration because welfare state concerns since the skilled variable is positive and significantly different from zero for all the groups.

This underscores the point that the individual country results should be taken with caution as they may largely be influenced by the country sample sizes. A more detailed country level study aimed at exploring the cross-country heterogeneity is needed to understand how the findings differ by country.

4.6.7 Other Sensitivity Analyses

Four additional models are estimated with the full cross-country sample to further check if the general findings are sensitive to changes in variable definitions as well as other controls. Model 5 extends and modifies the model 3 such that *age* (as continuous variable) and *education level* (a categorical variable with 0-6 categories) are used in place of *age-group* and the *skilled* binary variable. In addition, *citizen* is redefined to account for people who were born in the country as opposed to those who have a citizenship status; *worked abroad* is replaced with a variable that accounts for individuals who live in a *big city*; and *citizen parents* is included as an additional control to account for second generation immigrants. Model 6 extends and modifies model 4 with the above changes. Models 7 and 8 then alter the definition of skill/education level in model 5 and 6 with the *years of schooling* variable. The results for Models 5 and 6 are reported in Table A4.11, while the results for model 7 and 8 are reported in Table A4.12 (both in the appendix to the chapter).

Focusing on the main explanatory variables of the four additional models, the conclusion remains that welfare state concerns are indeed strong, significant and robust determinants of individual attitudes towards immigration. This is highlighted by the fact that the size and significance of all the gammas from models 5-8 remain identical (strong and highly significant) to the results from models 3 and 4.

The next finding is that the old generation are more likely to believe that immigrants have a negative effect on their welfare state outcomes irrespective of the controls and definition of variables. However, the likelihood that the old generation agrees that social benefits and service encourage immigrants to come and live in their country

155

is sensitive to the controls and variable definitions. The results from the last four models indicate that the coefficients for *age* continues to be negative (though small) and highly significant where $SWSE(1)$ is concerned but loses its significances with $SWSE(2)$ in model 6 and 8. The negative age coefficient however remains highly significant for all the models for $IMPP$. This means that, although older people (over 65 years) are always more likely to opposed immigration because of its negative effect on the welfare state, it does not necessarily always mean that the older people are more likely to agree that social benefits and services encourages immigration. Thus, the robustness of the relationship between age and individual attitudes towards immigration as a result of welfare state concerns is limited to $SWSE(1)$. This may be an indication that old and retired people are more concerned about the negative effect of immigration on the welfare state outcomes through the wage depression channel rather than how immigrants affect tax rates.

The results for the individual's skills level measured by the *education level* and *years of schooling* variables are also robust and consistent with the hypothesis that *skilled individuals are more likely to be pro-immigration due to welfare state concerns*. This is underlined by the highly significant positive coefficients for *education level* in model 5 and 6 as well as *years of schooling* in model 7 and 8.

Two additional models are also estimated as further robustness checks. In models 9 and 10, all the categorical variables with more than two outcomes in models 1 and 2 are redefined as dummy variables. Thus, for age-group the dummy variables are Young (16-40), Middle aged (41-65); Old and retired (above 65). The subjective estimates of the unemployment rate and the size of the current immigrant population in the respondent's country are also re-categorised into clusters of dummy variables as shown in Table A4.13. The *political inclination* variable is also changed to a dummy variable which takes the value of 1 if the respondent's political inclination is above 6 on a scale of 0-10 (where 0 represents left-wing political inclinations and 10 represents right-wing political inclinations). The variables, *pension sustainability, efficiency of the tax authorities* and *benefit* fraud are all also re-coded as dummy variables for models 9 and 10.

The results, shown in Table A4.13 in the appendix, confirms the findings so far. The table shows that compared to the *young* (the reference group), *middle-aged* individuals are more likely to be anti-immigration and also more likely to believe that immigrants are bad for the country's welfare state. *Old and retired* people are even more likely to be opposed to immigration. To a large extent, the results also confirm that the higher an individual's subjective estimate of the unemployment rate the more likely they are to oppose immigration and the more likely they are to think that immigrants contribute less to the welfare state than they receive. Similarly, the higher a person's subjective

estimate of the size of the immigrant population the more likely they are to believe that immigrants are bad for the Welfare state.

4.7 Conclusions

Individual attitudes towards immigration feature strongly in the immigration policy making process in the modern democratic state. Irrespective of the overall effects of immigration in the host country, attitudes towards immigration are largely based on how immigration affects the individual's labour market (employment and wages) and welfare state (taxes and social benefits) outcomes. Against the background that individual attitudes towards immigration are deeply rooted in personal economic self-interest, this chapter explored the importance of welfare state concerns and considerations as determinants of individual attitudes towards immigration using the 2008/09 edition of the European Social Survey dataset.

The chapter examines the extent to which attitudes towards immigration are determined by individual concerns about the effect of immigrants on the welfare state, where the potential immigrants are perceived as predominantly less skilled relative to the native population. In addition to this, the chapter relies on established theoretical models to analyse the effect of an individual's age/age-group and skill level on their social security motivated attitudes towards immigrations.

There are two main conclusions from this chapter. The first is that welfare state considerations are very important determinants of individual attitudes towards immigration in Europe. This conclusion is based on the best available survey evidence, the 2008/09 ESS, which revealed a strong robust positive correlation between the subjective views of individuals regarding the effect of immigrants on the welfare state and individual immigration policy preferences. The evidence also confirms that causality runs from the former to the latter. The individual immigration policy preferences relate to immigrants that are largely perceived as predominantly unskilled, from poor developing countries outside Europe. Thus, all things being equal, an individual who believes that immigrants have a negative effect on the welfare state is also more likely to prefer to restrict immigration of predominantly unskilled immigrants.

The second conclusion is that intergenerational models of public pension and immigration policy do a good job of predicting the effects of age/age-groups and skill levels on individual attitudes towards immigration. This is underlined by the two sets of evidence relating to age and skills (education) levels. The analyses confirmed that, by taking into consideration welfare state concerns, older retired individuals are more likely than young and middle-aged individuals to oppose immigration. The evidence also suggested that skilled (highly educated) individuals are more likely than unskilled individuals to be pro-immigration based on welfare state concerns.

The individual immigration policy preferences that were analysed to obtain both sets of evidence relate to (perceived) predominantly unskilled immigrants.

The conclusions from the empirical studies in this chapter have significant bearing on the direction of immigration policies in the European welfare state as well as the public discourse on the effects of immigration. The conclusions highlight the fact that people's concerns about their taxes and social benefits as a result of immigration in Europe are just as important as, if not more import than, their labour market concerns, even though public debate on the effects of immigrants tends to focus more on employment and wages. The results also show that there is a need for policy makers and social commentators to bring the issue of public pension financing into the immigration policy debate arena to enrich the process of immigration policy-making.

Appendix to Chapter 4

4.A Appendix to Chapter 4

Table A4.1: Demographic and other statistics related to Social security, 2008

Country	GDP per capita (US$)	Total population (millions)	Percentage 65 or older	Dependency ratio	Life Expectancy		Statutory pensionable age	
					Male	Female	Male	Female
Belgium	32,119	10.4	17.3	52.2	76.5	82.3	65	64
Bulgaria	9,032	7.7	17.2	44.9	69.5	76.7	63	59.5
Croatia	13,042	4.6	17.2	48.6	72.3	79.2	65	60
Cyprus	22,699	0.8	12.1	47.1	76.5	81.6	65	65
Czech Republic	20,538	10.2	14.2	40.8	73.4	79.5	61.83	56.33
Denmark	33,973	5.4	15.1	51.3	76	80.6	65	65
Estonia	15,478	1.3	16.6	46.6	65.9	76.8	63	60.5
Finland	32,153	5.2	15.9	49.9	76.1	82.4	65	65
France	30,386	61	16	53.1	77.1	84.1	60	60
Germany	29,461	82.7	18.8	49.7	76.5	82.1	65	65
Greece	23,381	11.1	18.3	48.4	77.1	81.9	65	60
Hungary	17,886	10.1	15.2	44.9	69.2	77.4	62	61
Israel								
Latvia	13,646	2.3	16.6	44.9	67.3	77.7	62	61.5
Netherlands	32,684	16.3	14.2	48.4	77.5	81.9	65	65
Norway	41,420	4.6	14.3	52.2	77.8	82.5	67	67
Poland	13,847	38.2	13.3	42	71.3	79.8	65	60
Portugal	20,410	10.5	16.9	48.9	75	81.2	65	65
Romania	9,060	21.6	14.8	43.9	69	76.1	63.25	58.25
Russian Federation	10,845	144	13.8	40.6	59	72.6	60	55
Slovakia	15,871	5.4	11.7	39.9	70.7	78.5	62	56.75
Slovenia	22,273	2	15.6	42.2	74.1	81.5	62.5	56
Spain	27,169	43.4	16.8	45.3	77.7	84.2	65	65
Sweden	32,525	9	9	52.9	78.7	83	65	65
Switzerland	35,633	7.4	7.4	47.3	79	84.2	65	64
Turkey								
UK	33,238	60.2	16.1	51.7	77.2	81.6	65	60
Ukraine	6,848	46.9	16.1	44.5	62.1	73.3	60	55

Source: Social Security Programs Throughout the World: Europe Report 2008, SSPTW: Europe, 2008.

Table A4.2: Sample size by country

Country ISO Code	Country	Unweighted Sample Number of observations	Percentage of total	Weight Sample Number of observations	Proportion of weighted observation
DE	Germany	2,751	5	7094	12.14
ES	Spain	2,576	4.68	3866	6.61
RU	Russian Federation	2,512	4.57	12000	20.73
IL	Israel	2,490	4.53	514	0.88
TR	Turkey	2,416	4.39	5194	8.89
PT	Portugal	2,367	4.3	899	1.54
GB	UK	2,352	4.28	5044	8.63
BG	Bulgaria	2,230	4.06	662	1.13
FI	Finland	2,195	3.99	441	0.75
RO	Romania	2,146	3.9	1825	3.12
FR	France	2,073	3.77	5054	8.65
GR	Greece	2,072	3.77	961	1.64
CZ	Czech Republic	2,018	3.67	890	1.52
LV	Latvia	1,980	3.6	196	0.34
UA	Ukraine	1,845	3.36	3969	6.79
SE	Sweden	1,830	3.33	764	1.31
CH	Switzerland	1,819	3.31	642	1.1
SK	Slovakia	1,810	3.29	455	0.78
NL	Netherlands	1,778	3.23	1347	2.3
BE	Belgium	1,760	3.2	887	1.52
EE	Estonia	1,661	3.02	114	0.2
PL	Poland	1,619	2.94	3221	5.51
DK	Denmark	1,610	2.93	447	0.76
NO	Norway	1,549	2.82	383	0.66
HU	Hungary	1,544	2.81	854	1.46
HR	Croatia	1,484	2.7	375	0.64
SI	Slovenia	1,286	2.34	175	0.3
CY	Cyprus	1,215	2.21	65	0.11
Total		54,988	100	58000	100

Figure A4.1: Histogram of Immigration Policy Preferences by Country

Immigration Policy Preferences
Graphs by country
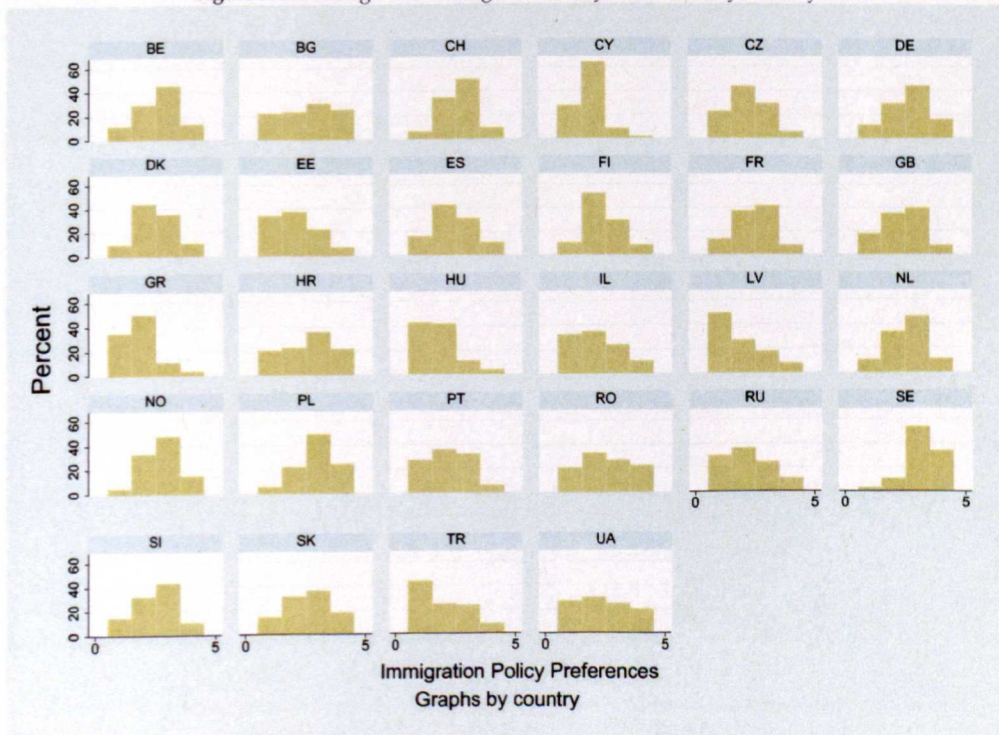
Table A4.3: Immigration Policy Preferences by Country

Country	allow none (1)	allow few (2)	allow some (3)	allow many (4)	don't know/ missing	Total	Mean	std dev	median	dep ratio
Sweden	46	187	957	610	30	1,830	3.18	0.72	3	52.9
Poland	81	343	769	377	49	1,619	2.92	0.81	3	42
Norway	69	507	740	227	6	1,549	2.73	0.76	3	52.2
Germany	306	783	1,183	424	55	2,751	2.64	0.88	3	49.7
Switzerland	114	600	879	169	57	1,819	2.63	0.75	3	47.3
Belgium	210	509	792	234	15	1,760	2.60	0.87	3	52.2
Croatia	279	312	490	299	104	1,484	2.59	1.04	3	48.6
Slovakia	244	540	625	307	94	1,810	2.58	0.94	3	39.9
Bulgaria	425	444	581	479	301	2,230	2.58	1.09	3	44.8
Netherlands	179	578	807	187	27	1,778	2.57	0.81	3	48.4
Romania	350	572	460	387	377	2,146	2.50	1.04	2	43.9
Slovenia	180	402	535	125	44	1,286	2.49	0.86	3	42.2
Denmark	158	701	555	172	24	1,610	2.47	0.82	2	51.3
France	267	749	838	165	54	2,073	2.45	0.82	2	53.1
Ukraine	418	464	390	316	257	1,845	2.38	1.08	2	44.5
Spain	385	1,053	763	268	107	2,576	2.37	0.87	2	45.3
UK	412	811	915	172	42	2,352	2.37	0.86	2	57.7
Finland	224	1,130	634	180	27	2,195	2.36	0.78	2	49.9
Czech Republic	433	844	564	108	69	2,018	2.18	0.84	2	40.8
Portugal	593	797	710	132	135	2,367	2.17	0.89	2	48.4
Russian Federation	640	783	521	233	335	2,512	2.16	0.97	2	40.6
Israel	719	775	528	232	236	2,490	2.12	0.98	2	60.9
Estonia	534	599	354	114	60	1,661	2.03	0.92	2	46.6
Turkey	983	559	531	184	159	2,416	1.96	1.00	2	50.4
Cyprus	325	763	99	15	13	1,215	1.84	0.61	2	47.1
Greece	709	1,027	227	74	35	2,072	1.84	0.76	2	48.4
Latvia	904	480	315	143	138	1,980	1.84	0.97	2	44.9
Hungary	623	613	163	62	83	1,544	1.77	0.81	2	44.9
Total	10,810	17,925	16,925	6,395	2,933	54,988	2.36	0.94	2	

163

Table A4.4: Individual Subjective Assessment of the Welfare State Effects of Immigrants, SWSE(1)by country

country	Mean	Std. Dev.	median	Freq.
Turkey	6.33	2.1	6	1922
Cyprus	5.5	2.53	5	1089
Israel	5.05	2.14	5	2175
Romania	5.01	2.15	5	1402
Switzerland	4.76	1.94	5	1592
Portugal	4.73	2.03	5	1804
Estonia	4.68	1.67	5	1301
Sweden	4.57	1.76	5	1696
Bulgaria	4.51	2	5	1309
Poland	4.51	1.89	5	1329
Spain	4.4	2.2	5	2315
France	4.4	1.96	5	2021
Denmark	4.39	1.92	5	1529
Norway	4.38	1.92	5	1535
Ukraine	4.32	2.33	5	1337
Finland	4.27	1.8	4	2118
Latvia	4.25	2.23	5	1642
Netherlands	4.2	1.7	4	1696
Slovenia	4.09	2.18	5	1148
Greece	4.09	2.21	4	1997
Russian Federation	4.07	2.24	5	2086
Croatia	4.06	2.07	5	1218
UK	3.84	2.32	4	2257
Belgium	3.82	1.95	4	1721
Germany	3.78	2.05	4	2555
Czech Republic	3.76	2	4	1725
Slovakia	3.64	2.04	4	1512
Hungary	3.45	2.13	4	1198
Total	4.38	2.14		47229

Figure A4.2: Individual Perceptions of the Unemployment Rate
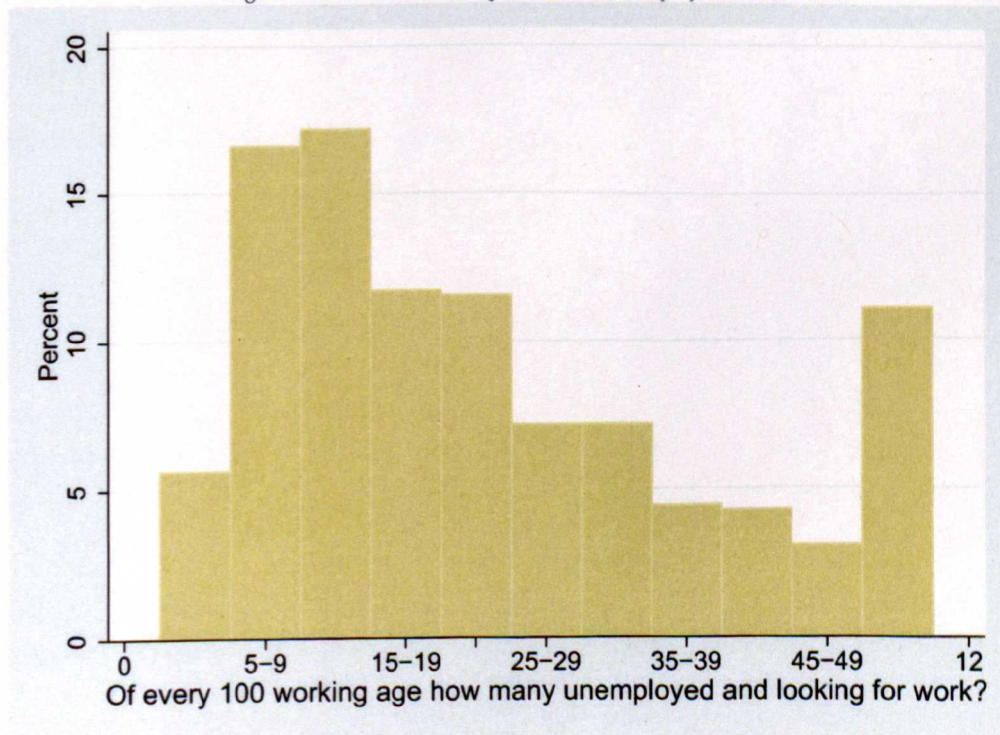
Table A4.5: Social Benefits and Services encourage Immigrants to come and live here, SWSE(2):Summary Responses by Country

country	agree strongly	agree	neither agree nor disagree	disagree	disagree strongly	don't know/missing	Total	Mean	Std. Dev.	median
Bulgaria	49	154	237	609	685	496	2,230	4	1.07	4
Ukraine	75	183	248	429	478	432	1,845	3.74	1.2	4
Latvia	39	193	432	768	391	157	1,980	3.7	0.99	4
Estonia	31	249	366	657	232	126	1,661	3.53	1	4
Russian Federation	90	327	524	761	415	395	2,512	3.51	1.1	4
Hungary	96	228	276	517	248	179	1,544	3.43	1.17	3
Slovakia	56	299	480	550	263	162	1,810	3.4	1.06	4
Poland	34	326	347	636	110	166	1,619	3.32	0.98	3
Romania	95	415	587	501	161	387	2,146	3.12	1.04	3
Turkey	280	503	533	596	233	271	2,416	3	1.21	3
Croatia	68	374	471	343	77	151	1,484	2.99	0.99	3
Portugal	41	814	492	621	109	290	2,367	2.97	0.99	3
Slovenia	39	412	330	369	35	101	1,286	2.96	0.95	3
Czech Republic	284	576	462	350	182	164	2,018	2.77	1.2	3
Israel	228	921	536	448	154	203	2,490	2.73	1.09	2
Netherlands	186	810	271	441	56	14	1,778	2.64	1.06	2
Greece	238	782	565	342	63	82	2,072	2.6	1.01	2
Sweden	172	841	480	270	24	43	1,830	2.51	0.91	2
Belgium	337	699	267	368	75	14	1,760	2.51	1.15	2
Cyprus	166	578	215	179	19	58	1,215	2.4	0.97	2
Finland	350	1,032	516	244	36	17	2,195	2.35	0.93	2
Spain	510	1,145	437	360	13	111	2,576	2.28	0.97	2
Denmark	327	736	302	194	21	30	1,610	2.27	0.97	2
Switzerland	358	900	252	242	20	47	1,819	2.25	0.97	2
Norway	295	803	280	145	19	7	1,549	2.22	0.9	2
France	622	854	305	202	80	10	2,073	2.16	1.08	2
UK	670	1,102	281	248	32	19	2,352	2.09	0.97	2
Germany	698	1,517	314	171	19	32	2,751	2.01	0.83	2
Total	6,434	17,773	10,806	11,561	4,250	4,164	54,988	2.79	1.17	

Table A4.6: Summary Age-groups by Country

country	Young	Middle aged	Old/Retired	Don't know/missing	Total
Turkey	1,415	770	210	21	2,416
Israel	1,103	925	426	36	2,490
Spain	1,101	947	524	4	2,576
Russian Federation	1,018	952	538	4	2,512
Greece	901	874	295	2	2,072
Romania	880	876	359	31	2,146
Germany	875	1,289	561	26	2,751
UK	848	967	509	28	2,352
Finland	806	977	412	0	2,195
Czech Republic	791	921	306	0	2,018
France	787	856	430	0	2,073
Portugal	744	849	773	1	2,367
Sweden	724	733	373	0	1,830
Poland	718	636	265	0	1,619
Latvia	715	818	447	0	1,980
Belgium	701	744	315	0	1,760
Switzerland	681	754	384	0	1,819
Ukraine	668	767	410	0	1,845
Bulgaria	660	1,013	557	0	2,230
Norway	650	669	229	1	1,549
Estonia	644	655	362	0	1,661
Netherlands	618	803	357	0	1,778
Hungary	616	599	329	0	1,544
Slovakia	582	833	383	12	1,810
Croatia	570	582	301	31	1,484
Cyprus	541	482	192	0	1,215
Denmark	530	761	319	0	1,610
Slovenia	523	509	254	0	1,286
Total	21,410	22,561	10,820	197	54,988

Table A4.7: Summary Skilled/Unskilled Distribution by Country

country	Unskilled	Skilled	Don't know/missing	Total
Russian Federation	1,106	1,406	0	2,512
Germany	1,539	1,207	5	2,751
Latvia	917	1,063	0	1,980
UK	1,299	1,038	15	2,352
Israel	1,437	1,037	16	2,490
Ukraine	892	948	5	1,845
Norway	864	679	6	1,549
Finland	1,522	672	1	2,195
France	1,429	642	2	2,073
Denmark	960	640	10	1,610
Sweden	1,191	631	8	1,830
Estonia	1,048	608	5	1,661
Belgium	1,180	571	9	1,760
Netherlands	1,206	571	1	1,778
Greece	1,536	536	0	2,072
Switzerland	1,299	516	4	1,819
Bulgaria	1,783	447	0	2,230
Spain	2,165	409	2	2,576
Cyprus	825	388	2	1,215
Romania	1,741	382	23	2,146
Poland	1,243	373	3	1,619
Croatia	1,166	315	3	1,484
Slovakia	1,502	297	11	1,810
Portugal	2,078	289	0	2,367
Slovenia	1,015	268	3	1,286
Hungary	1,300	243	1	1,544
Czech Republic	1,791	224	3	2,018
Turkey	2,219	188	9	2,416
Total	38,253	16,588	147	54,988

Table A4.8: Decriptive Statistics by country: Citizenship, Ethnic Minority, Gender and worked Abroad

Country	Sample	Citizens (%)	Ethnic Minority	Male	Female	Worked abroad
Germany	2,751	96.4	4.3	52.7	47.3	3.7
Spain	2,576	93.1	3	47.4	52.6	6.7
Russian Federation	2,512	99.5	13.8	39.4	60.6	1.9
Israel	2,490	98.9	15.9	45.8	54.2	5.6
Turkey	2,416	99.9	6.5	46.7	53.4	3.3
Portugal	2,367	97.5	2.5	39.1	60.9	4.8
UK	2,352	96	6.9	45.8	54.2	5.4
Bulgaria	2,230	99.6	18.1	43.9	56.1	4.7
Finland	2,195	99.1	1.5	49.1	50.9	4.2
Romania	2,146	99.7	16.6	45	55	5.4
France	2,073	96.4	3.9	45.4	54.6	5
Greece	2,072	96.4	4.5	45.4	54.6	4.8
Czech Republic	2,018	99.5	2.4	48.8	51.2	6.6
Latvia	1,980	87	7.9	37.7	62.3	6
Ukraine	1,845	99.7	6	37.4	62.6	5.9
Sweden	1,830	96.2	3.1	50.2	49.8	6.8
Switzerland	1,819	84.4	7.8	45.2	54.8	6.9
Slovakia	1,810	99.7	5.5	38	62	8.1
Netherlands	1,778	97.3	6.9	46	54	5.7
Belgium	1,760	93.6	4	49.1	50.9	6.8
Estonia	1,661	82.6	21.1	42.4	57.6	8.4
Poland	1,619	100	1.6	47.2	52.8	6.8
Denmark	1,610	97.5	3.1	49.6	50.4	4.5
Norway	1,549	95.4	4	52.1	47.9	3.8
Hungary	1,544	99.6	5.2	45.5	54.5	4.9
Croatia	1,484	99.8	7	43.1	56.9	6.3
Slovenia	1,286	99	2.2	46.4	53.7	3.6
Cyprus	1,215	96.5	3.4	50.5	49.6	7
Total	54,988	96.5	6.9	45.5	54.6	5.5

Table A4.9: Unemployment Rates and Proportion of Immigrant Populations by Country

Subjective Estimates of Unemployment Rates		Subjective Estimates of Immigrant Populations	
Country	Mean	Country	Mean
Switzerland	05-Sep	Slovakia	05-Sep
Norway	Oct-14	Czech Republic	05-Sep
Denmark	Oct-14	Bulgaria	05-Sep
Czech Republic	Oct-14	Finland	05-Sep
Cyprus	Oct-14	Poland	05-Sep
Finland	Oct-14	Hungary	05-Sep
Sweden	Oct-14	Romania	05-Sep
Netherlands	15-19	Denmark	Oct-14
Poland	15-19	Turkey	Oct-14
Slovakia	15-19	Norway	Oct-14
Germany	15-19	Croatia	Oct-14
France	15-19	Portugal	Oct-14
Estonia	20-24	Ukraine	Oct-14
Slovenia	20-24	Sweden	Oct-14
Israel	20-24	Estonia	15-19
UK	20-24	Greece	15-19
Belgium	20-24	Latvia	15-19
Greece	20-24	Netherlands	15-19
Spain	20-24	Slovenia	15-19
Romania	20-24	Cyprus	15-19
Russian Federation	25-29	Germany	15-19
Portugal	25-29	France	15-19
Croatia	25-29	Russian Federation	15-19
Bulgaria	25-29	Belgium	15-19
Latvia	25-29	Spain	15-19
Hungary	30-34	Switzerland	15-19
Turkey	30-34	UK	20-24
Ukraine	30-34	Israel	25-29

Table A4.10: Selected Results from Individual Country Regressions where Rho is not Significant ($\rho = 0$) in either Models 1 and 2

Country	Model 1 by Countries						Model 2 by Countries					
	Sample	Gamma SWSE(1)	Age-group	Skilled	Age-group	Skilled	Sample	Gamma SWSE(2)	Age-group	Skilled	Age-group	Skilled
Bulgaria	494	0.179 (0.260)	0.016 (0.071)	0.119 (0.104)	-0.165** (0.073)	0.199* (0.112)	536	0.650** (0.307)	0.012 (0.073)	0.194* (0.111)	-0.139* (0.080)	0.048 (0.164)
Cyprus	494	0.809*** (0.259)	-0.324*** (0.069)	0.102 (0.105)	0.174 (0.138)	0.159 (0.165)						
Czech	1128	0.295 (0.184)	-0.104** (0.048)	0.022 (0.090)	0.059 (0.055)	0.151 (0.096)	1163	0.190 (0.158)	-0.013 (0.047)	0.126 (0.089)	0.034 (0.050)	0.123 (0.096)
Croatia	596	0.141 (0.295)	-0.035 (0.063)	0.213** (0.095)	-0.150** (0.066)	0.058 (0.120)						
Greece							1106	0.211 (0.223)	0.057 (0.051)	0.057 (0.071)	-0.108** (0.054)	0.285*** (0.074)
Hungary							675	0.993*** (0.048)	-0.051 (0.055)	0.050 (0.108)	0.027 (0.063)	0.020 (0.142)
Israel	1079	0.054 (1.518)	-0.029 (0.050)	0.106 (0.069)	-0.122** (0.054)	0.071 (0.233)						
Latvia							1093	0.403 (0.409)	0.011 (0.046)	-0.129* (0.067)	-0.192*** (0.053)	0.098 (0.083)
Norway	339	0.353 (0.379)	-0.063 (0.068)	0.391*** (0.124)	-0.100 (0.080)	0.213 (0.220)	340	0.106 (0.442)	0.155** (0.069)	0.076 (0.141)	-0.138 (0.112)	0.326** (0.132)
Poland	778	0.782** (0.345)	-0.150** (0.060)	0.130 (0.086)	-0.102 (0.177)	0.001 (0.131)	812	0.932*** (0.241)	-0.099* (0.060)	0.164* (0.087)	-0.014 (0.224)	-0.102 (0.167)
Portugal	646	0.553*** (0.187)	0.032 (0.053)	0.272** (0.107)	-0.206*** (0.055)	0.098 (0.147)	707	-0.997*** (0.018)	-0.016 (0.056)	0.126 (0.124)	-0.021 (0.062)	0.134 (0.132)
Romania	503	-0.036 (0.389)	-0.028 (0.073)	0.018 (0.110)	-0.133* (0.071)	0.048 (0.122)	546	0.304 (0.798)	-0.144** (0.068)	0.201* (0.112)	-0.050 (0.141)	0.074 (0.233)

Table A4.10: continued

Country	Model 1 by Countries						Model 2 by Countries					
	Sample	Gamma SWSE(1)	Age-group	Skilled	Age-group	Skilled	Sample	Gamma SWSE(2)	Age-group	Skilled	Age-group	Skilled
Slovenia	636	0.410** (0.170)	-0.027 (0.062)	0.076 (0.093)	-0.359*** (0.067)	0.328*** (0.098)						
Slovakia	898	0.597** (0.263)	0.043 (0.054)	0.205** (0.085)	-0.089 (0.055)	0.115 (0.131)						
Turkey	423	-0.142 (0.284)	-0.040 (0.078)	-0.125 (0.150)	-0.108 (0.088)	0.492*** (0.138)	430	-0.186 (0.682)	0.017 (0.083)	0.129 (0.127)	-0.120 (0.096)	0.496*** (0.141)
Ukraine							429	0.868 (0.680)	0.023 (0.085)	0.134 (0.112)	-0.078 (0.202)	-0.227 (0.220)

169

	Table A4.11:	Results for Sensitivity Analyses: Models 5 and 6		

	Model 5		Model 6	
Observations	24800		25300	
Wald Test of overall significance of model:	$\chi^2(39)=2709$		$\chi^2(39)=5758$	
P-value	0.0000		0.0000	
Rho(ρ)	-0.3083***		-0.4014***	
[Standard Error]	(0.0397)		(0.0354)	
Wald Test of independent equations:	$\chi^2(1)=52.65$		$\chi^2(1)=101.69$	
P-value	0.0000		0.0000	
Gamma [Standard Error]	0.4516***		0.4753***	
	(0.0376)		(0.0337)	
Explanatory Variables (Equation 1)	**SWSE(1)**	**IMPP**	**SWSE(2)**	**IMPP**
Age	-0.0018***	-0.0050***	0.0004	-0.0055***
	(0.0005)	(0.0006)	(0.0005)	(0.0006)
Education level	0.0409***	0.0387***	0.0281***	0.0350***
	(0.0056)	(0.0066)	(0.0058)	(0.0063)
Citizen (born in country)	-0.2444***	0.0372	-0.1142***	-0.0191
	(0.0306)	(0.0357)	(0.0316)	(0.0341)
Citizen Parents	-0.1255***	-0.0197	-0.0151	-0.0547**
	(0.0238)	(0.0267)	(0.0249)	(0.0257)
Ethnic Minority	0.0660**	-0.0513	0.0188	-0.0233
	(0.0320)	(0.0358)	(0.0321)	(0.0363)
Female	0.0169	0.0462***	0.0343**	0.0334**
	(0.0133)	(0.0143)	(0.0137)	(0.0143)
Retired	0.0097	-0.0204	-0.0608**	0.0125
	(0.0227)	(0.0245)	(0.0237)	(0.0242)
Unemployment Rate	-0.0121***	-0.0026	0.0172***	-0.0155***
	(0.0030)	(0.0033)	(0.0030)	(0.0032)
Current Immigration Level	-0.0158***	0.0027	-0.0183***	0.0061*
	(0.0034)	(0.0037)	(0.0034)	(0.0036)
Right-wing Political Inclination	-0.0267***	-0.0347***	-0.0346***	-0.0262***
	(0.0034)	(0.0039)	(0.0034)	(0.0041)
Household Income	0.0112***	-0.0012	-0.0061**	0.0070**
	(0.0028)	(0.0031)	(0.0029)	(0.0030)
Big City (lives in a big city)	-0.0197***	0.0024	-0.0013	-0.0027
	(0.0055)	(0.0061)	(0.0057)	(0.0059)
Pro-immigration Culture		0.1764***		0.1819***
		(0.0046)		(0.0048)
Instruments				
Pension System Sustainability	0.0893***		0.0907***	
	(0.0098)		(0.0098)	
Efficiency of Tax Authorities	0.0362***		-0.0005	
	(0.0038)		(0.0032)	
Benefit Fraud	0.1567***		0.1772***	
	(0.0073)		(0.0080)	

Robust standard errors in brackets. * significance at 10%; ** significance at 5%; *** significance at 1%. All regressions include country dummies for all countries except Germany (largest sample); coefficients for countries not reported in this table. The estimated cut points a are also not reported.

Table A4.12: Results for Sensitivity Analyses: Models 7 and 8

	Model 7		Model 8	
Observations	24,700		25,300	
Wald Test of overall significance:	$\chi^2(39)=2715$		$\chi^2(39)=5748$	
P-value	0.0000		0.0000	
Rho(ρ)	-0.3056***		-0.3950***	
[Standard Error]	(0.0397)		(0.0353)	
Wald Test of independent equations:	$\chi^2(1)=51.89$		$\chi^2(1)=99.53$	
P-value	0.0000		0.0000	
Gamma [Standard Error]	0.4495***		0.4700***	
	(0.0376)		(0.0337)	
Explanatory Variables (Equation 1)	**SWSE(1)**	**IMPP**	**SWSE(2)**	**IMPP**
Age	-0.0016***	-0.0047***	0.0005	-0.0052***
	(0.0005)	(0.0006)	(0.0005)	(0.0006)
Years of Schooling	0.0165***	0.0156***	0.0099***	0.0155***
	(0.0020)	(0.0024)	(0.0020)	(0.0022)
Citizen (born in country)	-0.2394***	0.0354	-0.1150***	-0.0187
	(0.0307)	(0.0357)	(0.0316)	(0.0341)
Citizen Parents	-0.1252***	-0.0191	-0.0169	-0.0534**
	(0.0238)	(0.0268)	(0.0249)	(0.0258)
Ethnic Minority	0.0649**	-0.0499	0.0165	-0.0217
	(0.0320)	(0.0358)	(0.0321)	(0.0362)
Female	0.0175	0.0477***	0.0347**	0.0349**
	(0.0133)	(0.0144)	(0.0137)	(0.0143)
Retired	0.0166	-0.0206	-0.0581**	0.0136
	(0.0228)	(0.0246)	(0.0237)	(0.0243)
Unemployment Rate Ú	-0.0118***	-0.0025	0.0174***	-0.0152***
subjective estimate	(0.0030)	(0.0033)	(0.0030)	(0.0032)
Current Immigration Level Ú	-0.0157***	0.0024	-0.0181***	0.0058
subjective estimate	(0.0034)	(0.0037)	(0.0034)	(0.0036)
Right-wing Political Inclination	-0.0264***	-0.0343***	-0.0343***	-0.0261***
	(0.0034)	(0.0039)	(0.0034)	(0.0041)
Household Income	0.0109***	-0.0013	-0.0058**	0.0064**
	(0.0028)	(0.0030)	(0.0029)	(0.0030)
Big City (lives in a big city)	-0.0183***	0.0043	-0.0005	-0.0006
	(0.0055)	(0.0061)	(0.0057)	(0.0059)
Pro-immigration Culture		0.1760***		0.1817***
		(0.0046)		(0.0047)
Instruments				
Pension System Sustainability Ú	0.0886***		0.0912***	
subjective view	(0.0098)		(0.0098)	
Efficiency of Tax Authorities	0.0362***		-0.0004	
	(0.0038)		(0.0032)	
Benefit Fraud	0.1574***		0.1786***	
	(0.0074)		(0.0080)	

Robust standard errors in brackets. * significance at 10%; ** significance at 5%; *** significance at 1%. All regressions include country dummies for all countries except Germany (largest sample); coefficients for countries not reported in this table. The estimated cut points a are also not reported.

	Model 9		Model 10	
Observations	27629		28447	
Wald Test: Overall	2429.37		6899.18	
P-Value	0.0000		0.0000	
Rho	-0.450***		-0.571***	
Standard Error	(0.053)		(0.051)	
Wald Test: Independent Equations	72.96		124.46	
P-Value	0.0000		0.0000	
Gamma	0.659***		0.630***	
Standard Error	(0.038)		(0.034)	

Explanatory Variables	SWSE(1)	IMPP	SWSE(2)	IMPP
Age-groups				
Young (16-40yrs): Reference Group				
Middle-aged (41-65yrs)	-0.048***	-0.101***	-0.006	-0.118***
	(0.014)	(0.015)	(0.014)	(0.014)
Old and retired (66yr and above)	-0.083***	-0.281***	-0.071***	-0.252***
	(0.019)	(0.022)	(0.019)	(0.022)
Skilled	0.150***	0.154***	0.089***	0.176***
	(0.014)	(0.019)	(0.014)	(0.017)
Citizen	-0.386***	0.014	-0.154***	-0.115***
	(0.038)	(0.047)	(0.038)	(0.042)
Ethnic Minority	0.111***	-0.017	0.017	0.045
	(0.030)	(0.033)	(0.031)	(0.034)
Female	0.017	0.044***	0.022*	0.035***
	(0.013)	(0.013)	(0.013)	(0.013)
Unemployment Rate-Subjective				
0-4 Percent: Reference Group				
5-9 Percent	-0.001	0.053*	0.060**	0.008
	(0.029)	(0.030)	(0.030)	(0.028)
10-14 Percent	-0.059**	0.063**	0.011	0.015
	(0.030)	(0.031)	(0.031)	(0.029)
15-19 Percent	-0.056*	0.073**	0.026	0.014
	(0.032)	(0.033)	(0.033)	(0.032)
20-24 Percent	-0.105***	0.094***	0.053	-0.024
	(0.033)	(0.035)	(0.034)	(0.033)
25-29 Percent	-0.117***	0.036	0.108***	-0.104***
	(0.036)	(0.038)	(0.037)	(0.037)
30-34 Percent	-0.091**	0.006	0.089**	-0.100***
	(0.038)	(0.040)	(0.038)	(0.038)
35-39 Percent	-0.112***	0.017	0.176***	-0.183***
	(0.043)	(0.046)	(0.043)	(0.045)
40-44 Percent	-0.088**	-0.042	0.143***	-0.190***
	(0.044)	(0.049)	(0.045)	(0.047)
45-49 Percent	-0.075	-0.118**	0.072	-0.202***
	(0.054)	(0.058)	(0.053)	(0.054)
50 Percent and above	-0.180***	0.011	0.122***	-0.173***
	(0.039)	(0.043)	(0.039)	(0.040)

	Model 9		Model 10	
Current Immigration Level- Subjective				
0-4 Percent: Reference Group				
5-9 Percent	-0.026	0.043**	-0.031	0.045**
	(0.020)	(0.022)	(0.021)	(0.021)
10-14 Percent	-0.004	0.038*	-0.082***	0.085***
	(0.021)	(0.023)	(0.022)	(0.023)
15-19 Percent	-0.044*	0.033	-0.157***	0.101***
	(0.024)	(0.026)	(0.025)	(0.026)
20-24 Percent	-0.030	-0.013	-0.111***	0.038
	(0.027)	(0.029)	(0.028)	(0.029)
25-29 Percent	-0.058*	0.075**	-0.159***	0.138***
	(0.033)	(0.034)	(0.034)	(0.035)
30-34 Percent	-0.044	0.017	-0.137***	0.074**
	(0.034)	(0.037)	(0.035)	(0.037)
35-39 Percent	-0.123**	0.031	-0.166***	0.077
	(0.049)	(0.050)	(0.048)	(0.050)
40-44 Percent	-0.200***	-0.009	-0.127**	-0.037
	(0.052)	(0.052)	(0.050)	(0.052)
45-49 Percent	-0.241***	0.044	-0.261***	0.062
	(0.068)	(0.067)	(0.067)	(0.066)
50 Percent and above	-0.097**	-0.047	-0.187***	0.021
	(0.048)	(0.048)	(0.045)	(0.048)
Right-wing Political Inclination	-0.098***	-0.139***	-0.132***	-0.102***
	(0.015)	(0.017)	(0.015)	(0.018)
Worked Abroad	0.087***	0.000	-0.025	0.072**
	(0.028)	(0.030)	(0.029)	(0.029)
Instruments				
Pension sustainability	0.132***		0.118***	
	(0.013)		(0.012)	
Efficiency of Tax Authorities	0.091***		0.007	
	(0.014)		(0.012)	
Benefit Fraud	0.280***		0.311***	
	(0.015)		(0.016)	
Cut 11 and Cut 21	-1.836***	-1.461***	-0.622***	-1.354***
	(0.058)	(0.066)	(0.055)	(0.063)
Cut 12 and Cut 22	-1.468***	-0.374***	0.679***	-0.358***
	(0.057)	(0.055)	(0.055)	(0.051)
Cut 13 and Cut 23	-1.013***	0.780***	1.318***	0.710***
	(0.057)	(0.055)	(0.056)	(0.051)
Cut 14	-0.551***		2.422***	
	(0.056)		(0.057)	
Cut 15	-0.181***			
	(0.056)			
Cut 16	0.776***			
	(0.056)			
Cut 17	1.105***			
	(0.057)			
Cut 18	1.515***			
	(0.057)			
Cut 19	2.000***			
	(0.059)			
Cut 110	2.328***			
	(0.061)			

Robust standard errors in brackets. * significance at 10%; ** significance at 5%; *** significance at 1%. All regressions include country dummies for all countries except Germany (largest sample); coefficients for countries not reported in this table. The estimated cut points a are also not reported

CHAPTER 5

Conclusions

5.1   Summary of Main Findings

The studies in this thesis focus on immigration policies and their underpinnings from the migrant destination country's point of view. The first study in chapter two undertakes a panel data analysis of the determinants of migrant flows using administrative immigration data for the UK from 1973 to 2005 to investigate what happens to migrant flows when economic conditions in poor migrant sending countries begin to improve. The study is motivated by the misconception that there is a linear relationship between the level of economic development and emigration, such that, helping improve the general economic conditions (through trade and aid) in poor countries would reduce the rates of emigration from those countries to the developed world. This simplistic view is apparent in the calls, by some scholars, politicians and development practitioners, to promote economic development through trade and aid as a way of addressing the root cause of migrant flows from poor countries.

However, the chapter argues that emigration will initially rise with economic development (in the short to medium term) since development makes the needed resources for migration available to potential migrants. Nevertheless, after a certain economic development threshold any further economic development may lead to less emigration. Hence the chapter tests the hypothesis that:

> *There an inverse U-shaped relationship between economic development and migrant flows from poor countries.*

The chapter finds that this inverse U-shaped relationship generally exists for migrant flows from developing countries to the UK, however, there is some heterogeneity in the relationship across different country groupings.

The second and third studies in the thesis focus on understanding the traditional border immigration policies as well as the underlying immigration policy formulation process. Recognising that individual attitudes towards immigration are key inputs to any complete model of the immigration policymaking process, chapters three and four of the thesis present reviews of the literature on individual attitudes towards immigration and the results of a series of empirical analyses aimed at providing relevant evidence on specific issues within this nexus of the literature.

Chapter three undertakes a broad analysis within the literature on individual attitudes towards immigration by comparing the relative importance of cultural considerations and economic concerns in shaping individual attitudes towards immigration. This is motivated by the fact that, although cultural motivations (and other non-economic factors in general) are recognised as important determinants of individual attitudes towards immigration, economic concerns are often regarded as overarching in the literature. However, there is hardly any systematic evidence that establishes this idea. The chapter therefore tests the hypothesis that:

Individual subjective assessments of the economic impacts of immigrants are more important than their subjective assessment of the cultural impacts of immigrants in shaping their attitudes towards immigration, irrespective of ethnic or racial preferences.

The chapter however finds no robust evidence, based on the European Social Survey data, to support the hypothesis and hence concludes that economic concerns are not inherently more important than cultural concerns in shaping individual attitudes towards immigration. The study points out that cultural considerations may just be as important as (if not more than) economic concerns in shaping individual attitudes towards immigration.

Chapter four focuses on the welfare state and attitudes towards immigration. Within the context of aging populations in Europe and its consequences on the sustainability of European social security systems, an immigration policy that allows predominantly young workers (irrespective of their skill levels) to settle in the host country is often seen as a simple solution, at least, while social security reforms are being undertaken (Krieger, 2005). However, the design and successful implementation of such immigration policies depends on a good understanding of individual opinions and immigration policy preferences. On the premise that individual opinions and preferences are a result of the distributional impact of immigrants, chapter four empirically examines the role of welfare state considerations in shaping individual attitudes towards immigration.

The chapter examines the extent to which individual immigration policy preferences are determined by the concerns of residents about the effect of immigrants on the welfare state, where the potential immigrants are perceived as predominantly less skilled relative to the native population. Relying on established theoretical models (Krieger, 2004; Scholten and Thum, 1996), the chapter also tests the following two empirical hypotheses:

i. *Old and retired individuals are more likely to oppose immigration than young and middle-aged individuals due to welfare state concerns*

ii. *Skilled individuals prefer more immigration than unskilled (low skilled) individuals when social security concerns are taken into consideration.*

Based on survey data, the chapter finds evidence to support the conclusion that there is a strong, robust and positive correlation between the subjective views of individuals regarding the effect of immigrants on the welfare state and individual immigration policy preferences. Moreover, causality runs from the former to the latter. The chapter also finds that, as a result of social security concerns in Europe, older (retired) individuals are more likely than young and middle-aged individuals to prefer stricter immigration policies, while unskilled (less educated) individuals are more likely than skilled individuals to prefer stricter immigration policies. This finding leads to the conclusion that inter-generational models of public pension and immigration policy do a good job of predicting the effects of individual age/age groups and skill levels on attitudes towards immigration.

The conclusions from chapter four highlight the fact that people's concerns about their taxes and social benefits as a result of immigration in Europe are just as important as, if not more important than, their labour market concerns, even though public debates as well as economic research on the effects of immigrants tend to focus more on employment and wage effects of migration. The findings also show that there is a need for policy makers and social commentators to bring the issue of public pension financing into the immigration policy debate arena to enrich the process of immigration policy-making.

5.2 Policy Implications

The studies in this thesis show that as poor developing countries become better developed, the main migrant receiving countries should expect more migrant inflows and emigration pressure (rather than less) at least in the short to medium run. This means that border immigrations policies may need to be review periodically to take account of changing economic situations in the main migrant sending countries.

It also means that successful legal immigrants from poor countries may typically be of a higher income, education or social class compared to the average person in the source countries. This therefore has implications both for the source and destination countries. For the destination country, it indicates that there would be a flow of better-skilled or better-equipped migrants rather than a reduction in the flow of immigrants as a result of helping poor countries to develop. For source countries, it implies that as they develop they loose more and more of their middle class to migration. This can in turn slow down their development process and increase inequality further.

The thesis also provide evidence to show that cultural concerns are just as important as economic concerns in shaping individual attitudes towards immigration. This means that policies should not only be based on the economic impact of immigrants but the cultural impacts as well. Policy debates and academic research should therefore focus a bit more on cultural issues as well as issues migrant integration.

The thesis also concludes that welfare state concerns, particularly concerns about pension and tax burdens are important determinants of attitudes towards immigration. This implies that there may be opportunities to employ strategically designed immigration policies to deal with some of the problems associated with public pension systems in Europe that emanate from high dependency ratios.

5.3 Limitations and Suggestions for Future Research

Even though this thesis contributes more systematic evidence and new insights to the literature, thereby improving the available knowledge on determinants of and attitudes towards immigration, at least one limitation is worth noting. Given that the European Social Survey data are not longitudinal, the analyses in Chapters three and four are only able to deal with cross-country heterogeneity but are not able to properly account for changes over time. Lack of panel data analyses may have significant consequences for the findings in Chapter three. This is because the relative weight

that individuals may attach to economic and cultural concerns (with respect to their attitudes towards immigration) may be subject to time varying economic conditions that are not specific to their country but to the whole region or sub-regions.

For instance, Chapter three finds that, economic concerns are not substantially more important than cultural considerations and, in fact, concludes that cultural considerations may just be as important as economic concerns, for a survey that was taken during the period of a general economic recession in Europe. However, it is plausible that without the recession, cultural considerations may be more important than economic concerns since the economic atmosphere may have caused individuals to place more importance on economic concerns than they would normally do. Subject to the availability of 'true' panel datasets, future studies may be able to explore the time dimensions of the studies.

Lack of panel data analysis may also imply the the results for age in chapter four could be attributed to a cohort effect rather that to age or age-group. Thus there is a need to for future studies to employ panel data techniques to disentangle the effect of age and cohort effects.

With regards to Chapter two, future studies may look at estimating the actual threshold where development begins to have a negative impact on migrant flows from developing countries. Future studies may also look at further exploring the observed heterogeneity across different country groupings.

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187

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