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Effects of immigration policies on immigration to Norway 1969-2010

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Preface

Like in many developed countries immigration to Norway has increased much during recent decades. Since the early 1970s Norwegian authorities have enacted a number of changes to international commitments, laws and regulations designed to influence immigration. We try to quantify the effects of these changes on immigration using binary variables within a fairly standard economic model of immigration. We develop a dataset consisting of statistics for migration to Norway from 179 countries from 1969 to 2010 that includes demographic and economic variables which are standard in the migration literature. Our econometric results show that relative income, income distribution and in particular labour market outcomes are important factors in shaping migration flows and that a number of the immigration policy interventions have played an important role in changing the size and geographical composition of migration to Norway

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Abstract

Immigration to Norway increased during the period 1951 - 2010, as did the emigration from Norway. While during the 1950s there was net emigration most years, there was a balance during the 1960s while there has been a positive and increasing net immigration since then. In particular there was a strong increase in labour immigration following the expansion of the EU in 2004. From the beginning of the 1970s the Norwegian authorities have implemented several measures to regulate immigration to Norway. This project examines how changes to regulations and the economic conditions have influenced this immigration, using statistics for gross immigration to Norway from, in principle, all countries in the world during the period 1969 – 2010.

Economic research on migration flows has used one standard model for the decision to migrate. This model stresses the economic conditions in the country of residence compared to those in the possible destination country. Expected differences in earnings will play a role, but the possibilities for finding a job corresponding to ones level of competence will also be important. The costs of moving and settling will also play a role when making the decision. These costs are influenced by cultural and linguistic differences between the countries of origin and destination. In many situations such economic considerations may have a limited influence if the person is migrating because of political persecution. In other cases the decision to migrate may be decided by new or existing family ties.

From 1957 Norway had a fairly liberal set of regulations on immigration, established by a new legislation ("Fremmedloven"). In 1971 this legislation was modified by introducing a requirement that the immigrant had to have obtained a job and a place to live before receiving a residence permit. As a temporary measure in 1974 and permanently from 1975 an "immigration halt" was introduced. Many of the numerous changes that have been introduced subsequently are also included in this analysis, i.e. those considered likely to have had the most significant impact on migration to Norway. The important changes following from the Norwegian entry into the EEA agreement in 1994 is particularly important, as is the Norwegian membership in the Schengen agreement and the impact of the subsequent increased membership in the EU. In total this analysis includes more than 20 changes to the regulations after 1971.

In line with existing studies of immigration we find that economic factors were important for the immigration to Norway. Income differences between Norway and other countries have the expected impact, as do differences in income distributions. The labour market situation in Norway has also been important. Lower unemployment in Norway has resulted in higher immigration. We do not have statistics on the labour market situation in all the countries included in this study, but for the countries with such statistics the results demonstrate that higher unemployment in the country of origin lead to higher emigration to Norway.

We find that many modifications to the immigration policies have had effects in the expected direction. One example is the 1975 'immigration halt' mentioned above. We have estimated that this measure did have a strong and long lasting effect on the total immigration to Norway and in particular on the immigration from the American continent and from Asia, while the effect on immigration from other European countries was insignificant. The further tightening of the immigration regulations that came in 1977 also reduced the immigration, while the more liberal policies introduced in 1981 and the continued income growth in the early 1980s contributed to higher immigration. Around 1990 many special events influenced the immigration to Norway. From 2000 to 2010 several changes linked to the EU influenced immigration to Norway. Norway's membership in the European Economic Area (EEA) from 1994 resulted in simpler immigration procedures for citizens of non-Nordic EU member countries, but does not seem to have influenced significantly the immigration from these countries. The Schengen agreement of 2001 did result in higher immigration, and the 2004 enlargement of EU did increase labour immigration to Norway substantially, later also family related immigration. The EU-enlargement of 2007 did also increase immigration to Norway, and the 2008 tightening of the rules for family establishment did have a notable effect according to our analysis.

Sammendrag

I perioden fra 1951 til 2010 har innvandringen til Norge vært sterkt økende. Fra å ha ligget på vel 10 000 per år i slutten av 1950-tallet og begynnelsen av 1960-tallet, økte innvandringen gradvis og var nærmere 40 000 per år rundt år 2000. Etter utvidelsen av EU i 2004 har arbeidsinnvandringen igjen økt mye og har svingt rundt 70 000 de aller siste årene. Mens det var netto utvandring på 1950-tallet, og om lag null nettoinnvandring på 1960-tallet, har nettoinnvandringen deretter vært positiv og økende. Fra begynnelsen av 1970-tallet iverksatte myndighetene flere tiltak for å påvirke innvandringen til Norge. I dette prosjektet analyseres hvordan ulike politiske tiltak og endringer i økonomiske omstendigheter har påvirket innvandringen til Norge. Tall for brutto innvandring fra i prinsippet alle land i verden til Norge fra 1969 til 2010 studeres.

I økonomisk forskning om migrasjonsstrømmer finnes det en slags standardmodell for hva som påvirker individers beslutning om å flytte eller ei. Her vektlegges økonomiske forhold i det landet man nå bor i forhold til dit man vurderer å flytte. Forskjeller i hva man vil tjene spiller en rolle, men også mulighetene for å få seg arbeid dit man kommer betyr noe. Kostnadene ved å flytte og etablere seg spiller åpenbart en rolle for om det er verd å flytte. Her kommer kulturelle og språklige forskjeller inn. I noen sammenhenger har økonomiske forhold liten betydning for beslutningene fordi man flykter av politiske grunner fra ett land til andre land, eller det kan være familiære bånd som motiverer flytting.

Mange land regulerer mulighetene for å flytte til landet. Norge hadde generelt et meget liberalt regime etablert gjennom Fremmedloven fra 1957. I 1971 ble denne loven noe modifisert ved at en immigrant måtte søke arbeid før han kom til Norge og måtte i prinsippet også ha skaffet seg et sted å bo før oppholdsløyve ble gitt. Dette liberale regimet representerer utgangspunktet for vår analyse. I 1975 ble det innført innvandringsstopp i prinsippet (midlertidig bestemmelse fra 1974). Senere har det skjedd mange endringer i reglene som vi forsøker å ta hensyn til i vår analyse. Ikke minst skjer det store endringer som følge av Norges medlemskap i EØS, inntreden i Schengen og ikke minst senere utvidelser av EU som får betydning for europeeres adgang til Norge via EØS-avtalen. Samlet sett har vi forsøkt å ta hensyn til over 20 endringer i regelverket siden 1971.

I tråd med eksisterende studier av innvandring finner vi at økonomiske bakgrunnsvariable har betydning for innvandring til Norge. Inntektsforskjellene mellom Norge og utlandet har det forventede fortegnet og også forskjeller i fordelingen av inntekt spiller en rolle. Jo skjevere inntektsfordelingen i Norge er sammenliknet med i opprinnelseslandet, jo større innvandring blir det. Også arbeidsmarkedssituasjonen i Norge har betydning. Er arbeidsløsheten i Norge lav, vil det komme flere til Norge. Vi har ikke data om arbeidsmarkedssituasjonen i alle landene vi studerer, men for de landene hvor data finnes, viser resultatene at høyere ledighet i opprinnelseslandet, øker utvandringen.

Vi finner også at mange innvandringspolitiske tiltak har hatt den tilsiktede effekten, dvs. at fortegnet på de estimerte effektene er i tråd med hva vi a priori forventet. Det gjelder for eksempel innvandringsstoppen som formelt ble innført i 1975. Vi har estimert at dette inngrepet hadde en stor og langvarig betydning for samlet innvandring til Norge. Det synes særlig å ha påvirket innvandring fra det amerikanske kontinentet og fra Asia, mens effekten på innvandring fra europeiske land synes utbetydelig. Også den videre innstramming i regelverket som skjedde i 1977 har dempet innvandringen, mens liberaliseringen i 1981, som forventet, bidro til høyere innvandring enn vi ellers ville ha fått. I tiden rundt 1990 var det mange spesielle begivenheter som påvirker innvandringen til Norge, men vi finner ikke at norsk deltakelse i EØS har noen vesentlig effekt på innvandringen. Derimot bidro Schengen-avtalen i 2001 til økt innvandring, og særlig utvidelsen av EU i 2004 har hatt stor betydning for arbeidsinnvandring og senere familieinnvandring til Norge. Også EU-utvidelsen i 2007 har økt innvandringen til Norge. Innstramming i reglene for familiegjenforening i 2008 har hatt en betydelig effekt på innvandringen ifølge vår analyse. Sterk inntektsøkning og lav arbeidsløshet har vært to bakenforliggende faktorer som også har bidratt til økt innvandring de senere årene.

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1. Introduction

Immigration to more developed nations has increased significantly for several decades. In Europe the breakdown of the "iron curtain" has further affected migration flows. The enlargement of the EU has brought former East-European countries into a common labour market that has affected migration flows. Although Norway is not a member of the EU, it is part of the European Economic Area (EEA) and consequently part of the common European labour market. Norway is thus affected by migration flows in Europe just as any other EU-country and migration to Norway has increased significantly in recent years. While Norway historically was a country with more emigration than immigration, the opposite has been the case more recently. Indeed, Norway together with Ireland was one of the countries with the highest rate of emigration during last decades of the 19th century and the first decade of the 20th century. This changed with more restrictive immigration policies in the US from the 1920s and the depression of the 1930s. Until around 1970 net migration to Norway was small. From around 1970 net immigration has been positive and gradually increasing, cf. Figure 1.1.

Figure 1.1. Migration to Norway. 1951–2010

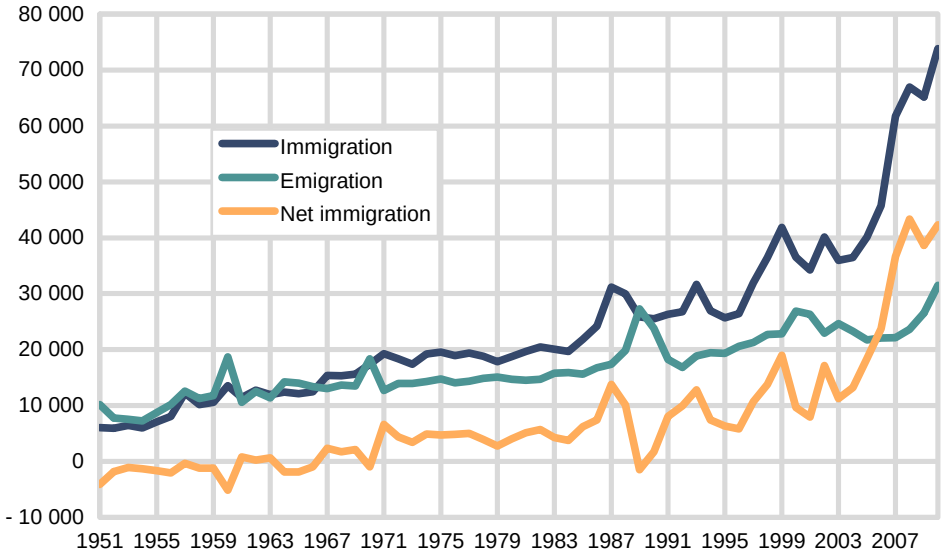
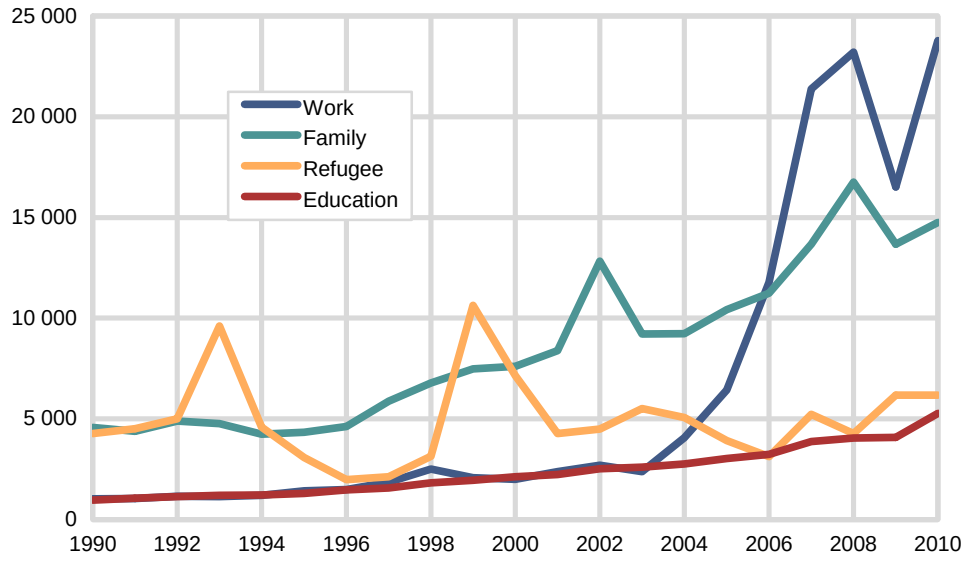


Figure 1.2 Immigration to Norway by registered reason for immigration[1] 1990-2009



[1] Does not include citizens of the other Nordic countries (Denmark, Finland, Iceland and Sweden)

Figure 1.2 shows the reported motives for immigration to Norway since 1990 when the collection of these statistics started, as defined by reason for the residence permit granted.[1] We see that the number of persons admitted following an application for asylum has varied around a fairly constant level. Student immigration to Norway has been steadily increasing from a low level. The number of people who come for work used to be at the same, quite low level, but has increased dramatically since the expansion of the EU in May 2004. Family reunion has been an important reason for immigration but is probably related to the other reasons and in particular to those who come for work and to seek protection. Note that these statistics do not include immigrants who are citizens of another Nordic country because they have had free access to Norway since 1957 and do not have to state any reason for immigrating when registering with the Population register.[2] Also, the statistics to not include intended stays of less than six months.

From the mid 1970s migration policy became a new theme in Norwegian politics and attempts at restricting immigration were put in place by a new law. Later a number of various measures have been introduced to affect migration. Not all of these have been restrictive. Some have been of a more liberal nature. In particular from 1994 and onwards migration into Norway has been affected by Norway joining the EEA. In this paper we study the effects of various immigration policy measures on immigration to Norway from all countries in the world using a data panel from 1969 to 2010. Policies have not been uniform across countries so we specify and test country specific or region specific policies. In order to do this we translate various immigration policies into a set of dummies for each policy. We shall return to how we have done this in Section 3 of the paper.

There are many studies that analyse migration based on a single destination country. For the United States the recent study by Clark *et al*. (2007) and for the United Kingdom by Hatton (2005) both find evidence for the role of immigration policies. Karemera *et al*. (2000) study migration to North American destinations while Mayda (2010) studies migration to 14 OECD countries. See Massey *et al*. (1993) for a description of various theories of migration. A number of variables have been suggested as driving forces in these migration studies. Some relate to cultural and linguistic factors while other take on a more economic perspective and focus on differences in economic opportunities such as income and labour market features.

Our main focus is to analyse how changes to Norwegian immigration policies have influenced migration to Norway during the previous four decades. We incorporate some of the main ideas in previous studies of migration, and test if migration policies in Norway can explain some of the changes in migration flows over time and from particular countries or groups of countries. Using a panel of 179 countries with statistics from 1969 to 2010 we conclude that not only do economic variables explain changes in migration to Norway over time but some of the major policy changes that have taken place are also important in understanding immigration to Norway.

In the next section we present our modelling framework while the third section discusses the data and in particular how we have created the policy intervention dummies that are linked to various migration policies. The fourth section presents our main results and a number of sensitivity tests. We conclude in section five.

[1] From 1. October 2009 non-Nordic citizens of the European Union (except Bulgarians and Romanians) only need to declare the main purpose of the stay when registering with the Norwegian authorities.

[2] Citizens of other countries needed a residence or work permit and the basis for granting the permit is registered by UDI.

2. Modelling framework

Our basic model dates back to Roy (1951) and is elaborated by Borjas (1987). For a recent application see Mayda (2010). There are two countries: (o)rigin and (d)estination. The log of wages that an individual living in the origin country would receive if not migrating (w_o) is assumed to be

(1) $$log\ w_o = \mu_o + \varepsilon_o, \qquad \text{where } \varepsilon_o \sim N(0, \sigma_o^2).$$

Here μ_o is interpreted as determined by individual observables such as education, gender etc., while ε_o captures unobservable characteristics with zero mean and a constant variance. For individuals who migrate there is a similar wage model in the destination country

(2) $$\log w_d = \mu_d + \varepsilon_d, \qquad \text{where } \varepsilon_d \sim N(0, \sigma_d^2).$$

The error terms are possibly correlated with a correlation coefficient ρ. Hatton (2005) and Clark *et al.* (2007) let the μ*'s* depend linearly on skill which is also assumed to be distributed normally so that the *log w's* retain their normal distribution.

The decision to migrate or not, is determined by the sign of an index *I*:

(3) $$I = \log (w_d/(w_o + c)) \approx (\mu_d - \mu_o - \delta) + \varepsilon_d - \varepsilon_{o.}$$

Here *c* is the level of mobility costs while δ is the wage equivalent mobility cost. Migration occurs if the value of index *I* is positive. Summing over all individuals in the origin country, the emigration probability (*P*) from the origin country is given by

(4) $$P = \Pr(\varepsilon_d - \varepsilon_o > -(\mu_d - \mu_o - \delta)) = 1 - \Phi(-\mu_d + \mu_o + \delta)/\sigma_\varepsilon).$$

Here, σ_ε^2 is the variance of the error term difference $\varepsilon_d - \varepsilon_o$ and Φ is the standard normal cumulative distribution function so the variance is given by

(5) $$\sigma_\varepsilon^2 = \sigma_d^2 + \sigma_o^2 - 2\sigma_{do}.$$

If the destination country has a more equal distribution of income than the origin country, an increase in the inequality in the destination country will lower σ_ε.[3] If the term in the brackets in (4) is negative so that the income in the destination country is higher than in the origin country adjusted for migration costs, an increase in destination inequality will increase immigration as argued for by Borjas (1987), Hatton (2005), and Clark *et al.* (2007).

Equation (4) captures some important features of empirical models of migration. Higher income in the origin country lowers *P*, while higher income in the destination country increases *P*. In addition, the income effects are the same but with opposite signs.

Borjas (1987) was the first to include the income distribution as a feature affecting migration. He finds that countries with more income inequality have lower emigration rates and that this negative effect is consistent with his model if there is a negative selection in the immigrant pool. For this to be the case there must be a strong positive correlation between earnings for immigrants in the origin and the destination countries and less income inequality in the destination country. If the mean income in the destination country is higher than in the origin country – which is a major motive for emigration in the first place – and inequality increases in the

[3] Note that $\partial\sigma_\varepsilon/\partial\sigma_d = (\sigma_d - \sigma_o)/\sigma_{\varepsilon.}$

origin country, then high-income persons in that country will have fewer incentives to emigrate while low-income persons in the origin country are not affected. Total emigration is then reduced. Thus, changes in the distribution of income in the origin country select or motivate on average different people to emigrate. Mayda (2010) argues for including also a quadratic term of relative income inequality and finds empirical support for this specification. Also Hatton (2005) and Clark *et al.* (2007) find significant effects of including variables characterising the income distribution in their models.

P in (4) is the emigration probability defined as emigration divided by the relevant population in the origin country or the emigration rate. If we specify the model using the number of emigrants as the endogenous variable while the size of the population of the origin country enters as a regressor, one could test this restriction. This is done by Karemera *et al.* (2000) who include the (log) population in the emigration equation but their results do not support using the emigration rate specification. Kim and Cohen (2010) combine the specification in (4) into a gravity model. Let M_{od} denote the number of migrants at any time from country *o* to country *d*, P_o is the population of the origin and P_d in destination, the simplest gravity model is

$$M_{od} = k \cdot P_o P_d / d_{od} , o \neq d, \quad (6)$$

where *k* is a constant and d_{od} refers to the distance between *o* and *d*. The standard specification used is achieved by dividing by P_o on both sides of Eq. (6) so the added feature of the gravity model is really the inclusion of the population of the destination country. Kim and Cohen (2010) test the restriction of unit elasticities of the population terms in the equation and generally reject these; although in several versions their estimate of the elasticity of P_o is not far from one.

Higher monetary costs of migration relative to income in the destination country reduce migration according to the model in (4). A theoretical model of the effects of mobility costs is the focus of Carrington *et al.* (1996). The idea here is that mobility costs decrease with the number of migrants already settled in the destination country because they send information about job and housing markets to friends and family in the origin country and generally provide a network for new entrants. The empirical specification of mobility costs is a central part of econometric analyses of migration. Standard proxies used are language differences, geographical distance, and migration policy indicators. It is common to include social indicators like crime and corruption indicators of political systems in order to explain migration flows. Several studies referred to earlier use more or less these variables in their econometric specifications. We proxy these factors using the number of resident immigrants by country divided by the Norwegian population as one indicator for migration costs. In addition our model includes fixed effect for all countries to capture other country specific factors. We also allow for these factors to change over time by including country specific time trends.

3. Data and specification of immigration policies

3.1. Statistics on demographic and economic variables

Statistics for immigration to Norway from every country in the world are readily available at "Statbank" at ssb.no.[4] We have chosen to model immigration by country of departure and not citizenship. This implies for instance that if an Ethiopian citizen has lived in Sweden for some time and then moves to Norway, he or she will be considered a Swedish immigrant to Norway. Statistics on immigrants by citizenship are available, but the series start much later and makes the study of migration policies before 1986 impossible.[5] Also it is not entirely clear what to prefer in our context. An Ethiopian that has lived in Sweden for some time may just as well be motivated by the same factors as a Swede even if the policies that applies to him/her are different as long as (s)he did not acquire Swedish citizenship. Statistics on the stock of immigrants by country is also found in this databank. The definition of an immigrant includes also children of immigrants born in Norway.

For a number of the countries in the world, migration to Norway does not take place every year. In fact for some small islands in the Pacific and Caribbean migration to Norway is a rare event. To take one example: During the period 1969 – 2010 there are four years of recorded migration to Norway from Samoa. In these cases we have simply excluded the country from our list. We have also excluded countries where immigration never reaches 5 persons in any year. For some countries where immigration is quite regular, there are also some years with no recorded immigration. These zero observations have been excluded from the sample in line with Kim and Cohen (2010). Table B.2 shows the number of observations by country included in the sample.[6]

In some cases countries have disappeared either because they have been merged with another country (South and North Vietnam becoming Vietnam) or have been split up into separate states (e.g. the Soviet Union and Yugoslavia). In these cases we have experimented with different specifications. We have tried to include only the new separate states as well as keeping the old state as one state even after the country has been split, in order to have a full sample. We will return to the various results for these cases in the next section. In general, though, it turns out that our choice of country specification using the full country sample is not important for the results unless, of course, some policies were specifically related to these countries.

Population statistics for all countries have been taken from United Nations, Population Division.[7] The statistics for Norway have been taken from the Statbank, as referred to earlier.

For economic statistics we rely on relative income measured by GDP per capita in PPPs and current US dollars based on Penn World Tables cf. Heston *et al*. (2011). We use GDP-figures in nominal terms as it is relative GDP-levels that are used in the model. We have also included unemployment levels in country of emigration where available as well as the unemployment level in Norway. These figures are taken from OECD-databases and usually go back to 1970. For many countries in the sample no reliable unemployment data have been found and the sample where unemployment in the origin country is included is therefore much smaller than the total sample. For some former countries such as the U.S.S.R. we do not have data for the most recent two decades and no data earlier than the most recent decades

[4] http://www.ssb.no/english/subjects/00/00/10/innvandring_en/

[5] With one exception noted below the fact that the regulations apply to country of citizenship and not of previous residence is not expected to influence the results.

[6] In Table B.12 we list the countries that are excluded from our analysis.

[7] World Population Prospects: The 2008 Revision - Extended CD-ROM Edition. WPP2008_ASCII_FILES/WPP2008_DB02_POPULATIONS_ANNUAL

for the individual countries that were included in the Soviet Union. In order to study the effect of keeping the "old" aggregation of such countries we have used data from Maddison (2003) for years previous to 1990 and linked those to the recent data for the new countries by aggregating them into former U.S.S.R, Czechoslovakia, and Yugoslavia.

Data for income distribution are also problematic. We have relied on three main sources of information. For countries taking part in the Luxembourg Income Study (LIS) there are generally high quality data going back sometimes even before 1970.[8] For most countries however, we rely on the WIDER database.[9] For Latin-American countries we also use data from the SEDLAC homepage.[10] The WIDER database indicates data quality by using a scale from 1 to 4. When possible we rely mostly on high quality data but have tried to make our coverage as complete as possible. In general data are better and comparable the more recent they are. For some countries there are comparable figures only for a few years. These are used to calibrate the level and lower quality data are used to interpolate between these years and when also these are missing linear interpolation is used.

3.2. Immigration policies and legislation in Norway

We now turn to how we have translated Norwegian immigration policies into quantitative variables. Our sample starts in 1969. We therefore focus on immigration policies from the early 1970s. First, we emphasise that immigration from the other Nordic countries (Denmark, Finland, Iceland and Sweden) has not been affected by any policy changes after the establishment of a Nordic passport union in 1957, which gave Nordic citizens free access to all the Nordic countries without needing passports, resident permits or work permits. It is also possible for Nordic citizens to commute or migrate to Norway for short term stays, e.g. to work, without even having to register with the population register that represents the main source of the immigration statistics used in this study. Consequently, no changes in immigration policies affect Nordic citizens.

Out of a large number of changes to laws and regulations listed on the home page of the Norwegian Directorate of Immigration[11] we have selected 23 as basis for specifying policy dummies to capture various aspects of policy changes, where some changes apply to all countries, some to a group of countries and, sometimes only to very few or even a single country. Since some of the policy changes are partly overlapping in time, one cannot include too many of the policy dummies in the model specification. Table 3.1 summarises the policy variables included in our study. We have included what we regard as the most important policy changes but we exclude changes such as higher visa fees (which are anyway quite moderate). A certain element of subjectivity must of course be used when choosing what to include and what to exclude and here we have relied on expert advice from the immigration authorities in our selection of dummies. The presentation below of the policy changes included gives an idea of the level of detail that we address and implicitly what we have excluded in the sense that other changes are not judged as being important enough on a priori grounds relative to those we have included. We should also note by specifying changes as step dummies we cannot be sure that we actually capture a policy change. The step dummies could in principle capture other changes affecting immigration. We do to some extent try to address this issue in some robustness checks in Section 4, but in spite of these tests there is an element of arbitrariness regarding our interpretation of the policy dummies.

[8] Data can be found on http://www.lisdatacenter.org/data-access/keyfigures/

[9] Cf. UNU-WIDER World Income Inequality Database, Version 2.0c, May 2008 available at http://www.wider.unu.edu/. LIS data is also included in the WIDER database.

[10] http://sedlac.econo.unlp.edu.ar. Database updated by April 2011.

[11] http://www.udi.no/Oversiktsider/Statistikk-og-analyse/FoU---rapporter1/Historisk-oversikt-over-regelverksendringer-/.

In 1957 a law concerning foreigners was passed ("Fremmedloven"), basically enacting a liberal regime for immigration to Norway. One could come to Norway without a work permit and apply for the permit after having arrived. There was no assessment of skill requirements for work, and after two years of residence you were granted permanent residence permit. In 1971 this law was slightly modified. A potential immigrant had to apply for work before coming to Norway and had to have arranged for some kind of accommodation before a permit was granted.[12]

Table 3.1. An overview of policy dummies and their expected sign in the econometric model

DDUM1974	Ban on general work permits. All countries. Negative
DUM1977	Residence permits not granted to illegally entrants. All countries. Negative
DUM1981	Residence permits for immigrant students and school attendants. They were also given work permits. More liberal rules for family reunions. All countries. Positive
DDUM1988	Polish workers on tourist visas given work permits. Ends in 2004. Positive
DUM1991	Easier family reunion, work permits given to applicants for residence. All countries. Positive
DUM1993	Easier access for people from Bosnia Herzegovina. Positive
DUM1994	Norway joins the EEA. EEA-citizens free access. Positive
DUM1997	Liberalisation related to the Geneva-convention. Refugees. Positive
DUM1998	Liberalisation for refugees. Positive
DUM1999	New law on human rights. UN convention on women and children. Positive
DUM2000A	Easier access for people with specialist competence. Positive
DUM2000B	Easier access for Iraqis. Positive
DUM2001	Schengen-convention. Liberalisation for Schengen member countries ("S"). May affect immigration from non-Schengen countries ("O") negatively
DDUM2003	Liberalisation in 1997 tightened in 2003. Affecting mostly people from Afghanistan, Iraq, Somalia and countries in former Yugoslavia. Negative
DDUM2004	Extension of EU included Czech republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. Positive for these countries
DUM2005	Easier access for Vietnamese refugees on the Philippines and Iraqis. Positive
DUM2006	More restrictive rules for family reunion for immigrants arriving on tourist visa. Negative for non-EU countries
DUM2007EU	New EU members: Bulgaria and Romania. Positive for these two countries
DUM2007A	New EU members from 2004 included in the Schengen area. Positive
DUM2007B	Residence for certain asylum seekers. Positive
DUM2008	Stricter economic demands for family reunion. Negative
DUM2009A	Temporary and transition rules applying to new (from 2004) EU members lifted. Positive effect for countries affected by Dummy 2004.
DUM2009B	Switzerland joins Schengen. Positive

In 1975 this rather liberal regime was formally modified by the introduction of new regulations based on the 1957 law. Changes took place in how the law was enforced, and included a ban on general work permits: the employers now had to confirm that the immigrant was a specialist, the work had to last at least one year, and the immigrant had to be literate (in his or her mother tongue). However, there were also some elements of liberalisation relating to possibilities of family reunions. We introduce a policy dummy for this change specified as a step dummy since this change has been in effect ever since. There were preliminary changes introduced in February 1974 and formally made in 1975 so the variable DDUM1974 is zero until 1973 and 1 for the years 1975–2009 and roughly 0.9 in 1974. In principle all (non-Nordic) countries are affected by the dummy and we expect the estimated effect of the policy change to be negative.

In 1977 a change in a regulation was introduced stating that residence would not be granted to persons entering Norway illegally. We expect DUM1977 (that is zero before 1977 and one thereafter) to enter with a negative sign. In 1981 a number of minor changes to immigration rules were introduced that generally made it easier for immigrants to enter and stay. Foreigners coming to Norway to study or go to school would be granted a residence permit and foreign students were also given a work permit. When studies had been completed it was made easier for foreigners to remain and work in Norway. A step dummy (DUM1981) is introduced, taking on

[12] In line with the policy dummies introduced in this section one could ask why we have not tried to estimate any effect of the 1971 change in regulations. The answer is that we have tried but the result was that the estimated coefficient had the wrong sign and was also insignificant perhaps due to few observations before 1971. This result is available upon request.

the value of one from 1981 being zero before that year. We expect the effect of this dummy to enter with a positive sign.

In 1988 there was a change in the regulations affecting Polish migrant workers allowing them to work while on a tourist visa. It is not really a policy that has a direct affect on immigration, and it did not necessarily result in stays that would be recorded as 'immigration' in the statistics used here, but it is included because it may have lead to applications of extended residence or the formation of families that would lead to immigration.[13] It is a step dummy (DDUM1988) affecting only immigrants from Poland. It takes on the value of one from 1988 but is again zero from 2004 when Poland joined the EU and thereby gained access to Norway in line with other EU citizens. The estimated effect is assumed to be positive.

In 1991 a number of minor changes in how immigration policies were practised took place. Family reunion was made easier and immigrants without a residence permit were granted a residence permit while the application was considered. Some minor changes were of a more restrictive nature, but all in all we expect these changes captured by DUM1991 to have a positive effect on immigration from 1991 and onwards.

In 1993 there was a liberalisation related to refugees from Bosnia Herzegovina. The companion dummy, DUM1993, is expected to enter with a positive sign, but affects only this country. A specific problem with our data is that we have only observation for Bosnia Herzegovina from 1993 and onwards. Thus we are not able to separate the effect of this dummy from the country-specific effects relating to this country.

Norway joined the European Economic Area (EEA) in 1994. In practice this meant that citizens of the EU gained free access to work in Norway for three months or to stay for six months as job-seekers, as well as getting in principle the same social benefits as Norwegian citizens. Although there was a time limit to the length of residence without obtaining a residence permit, there were in practice unlimited possibilities for extensions. We expect the DUM1994 to enter with a positive sign for all members of the EEA.

In 1997 a liberalisation took place in accordance with the Geneva-convention on how refugees should be handled by the immigration authorities in Norway. The changes were related to immigrants from countries in civil war. DUM1997 is not expected to affect many countries and therefore not to be important for overall immigration but is expected to enter with a positive sign.

Another liberalisation took place in 1998 affecting people who are persecuted in their home country for various reasons. The rules regarding refugees were to be interpreted in a more liberal way. We expect the DUM1998 to affect immigration to Norway positively and (in principle) affect all countries.

In 1999 the UN convention on children and women was made part of the Norwegian legislation. In addition work permits were given for different lengths of time and did not expire automatically after two years. All these changes are expected to lead the DUM1999 to enter with a positive sign. The changes are expected to affect all countries.

In 2000 a liberalisation took place relating to work permits for specialists with competences that are in excess demand in the Norwegian labour market. DUM2000A is expected to enter with a positive sign. Also Iraqis were granted easier access to Norway captured by DUM2000B.

[13] These seasonal work episodes may have led to contacts and networks in Norway that contributed to reducing the costs of migrating from Poland to Norway following the May 2004 Polish membership in the EU.

In 2001 Norway joined the Schengen agreement that identifies countries covered by a common policy for issuing short term visitors' visa that are valid for all visits to all countries that are party to the convention. It also extends the area where as a citizen of a member country you do not need a passport to enter one of the other member countries (but you may need another form of identity document). The Schengen agreement covers most members of the EU as well as all EFTA countries, but not all member countries joined in 2001. The convention may have limited immigration to Norway for some non-Schengen countries. We expect DUM2001 to enter with a positive sign for countries that are members of Schengen but not otherwise.

The liberalisation of 1997 was partly reversed in May 2003. Former asylum applicants had previously been exempted from the requirement to provide for family member applying for a residence permit. From 2003 this exemption would no longer apply to those families whose reference person had been granted a residence permit on humanitarian grounds following an asylum application, as long s/he had not yet been granted a permanent residence permit. In practice this tightening of rules applied mainly to immigrants from Afghanistan, Iraq, Somalia and former Yugoslavia, although in theory it is more general. So DDUM2003 is zero before 2003, equal to one half in 2003 and one thereafter, and is expected to enter with a negative sign.

In 2004 a number of countries joined the EU and citizens of these countries then also gained easier access to Norway. Some transition rules were put in place (lifted in 2007 and 2009) but it seems that in practice they limited immigration only marginally. Thus, DDUM2004 affects only the new members of the EU from that year and is expected to affect immigration from these countries positively.
In 2005 two changes in policy were introduced, enabling Iraqis and Vietnamese boat refugees (or near relatives) living in the Philippines easier access to Norway. Hence DUM2005 only applies to Iraq and The Philippines.[14] The dummy is expected to affect immigration from these two countries positively.

A more restrictive policy was introduced in 2006. Foreigners who had arrived on tourist visa and then applied for family reunion were now less likely to be granted residence. This applied in principle to all countries and DUM2006 is expected to enter with a negative sign.

In 2007 a number of changes in regulations affecting potential immigrants from EEA countries as well as more generally were made. The new EU members in 2004 were included in the Schengen area. This is captured by the dummy DUM2007A. Bulgaria and Romania became members of the EU but with some restrictions on access to Norway (parallel to those imposed on new EU-members in 2004). The effect of this is captured by DUM2007EU. Asylum seekers whose application was rejected and who had not managed to return within 3 years, from no fault of their own, could be granted a residence permit. We expect DUM2007B to enter with a positive sign and apply to all countries except the EU and EEA countries. All these dummies are expected to enter with a positive sign.

2008 saw a tightening of rules related to family reunion when authorities made it more difficult for family members to enter if the ability to provide for the family was not met. DUM2008 is expected to enter with a negative sign.

Finally in 2009 transitional restriction affecting the countries that joined EU in 2004 (except Cyprus and Malta) are lifted and the DUM2009A is expected to enter with a positive sign but to affect only citizens of those countries. In 2009 Switzerland joins Schengen and this is captured by DUM2009B.[15]

[14] Note that because our statistics are for country of previous residence, not citizenship the dummy applies to the Philippines and Iraq and not Vietnam.

[15] The Norwegian implementation of the EU Free Movements Directive from 1. October 2009, cf. **F**ootnote 1, was too late to be included in this analysis.

4. Model and empirical results

Our reference model[16] is given by

$$
\begin{aligned}
&(7)\ log(M_{i,t}/P_{i,t}) = \beta_1 log(M_{i,t-1}/P_{i,t-1}) + \beta_3 log(IS_{i,t-1}/PNOR_{t-1}) + \\
&\beta_5 log(GDPCAP_{i,t-2}/GDPCAPNOR_{t-2}) + \beta_7 URNOR_{t-1} + \gamma_1 DNNORDIC_i \times DDUM1974_t + \\
&\gamma_3 DNNORDIC_i \times DUM1977_t + \gamma_5 DNNORDIC_i \times DUM1981_t + \\
&\gamma_6 DOECD_i \times DNNORDIC_i \times DUM1981_t + \gamma_7 DPOL_i \times DDUM1988_t + \\
&\gamma_8 DNNORDIC_i \times DUM1991_t + \gamma_9 DOECD_i \times DNNONDIC1991_t + \\
&\gamma_{10} DEEA_i \times DUM1994_t + \gamma_{11} DREFUGEE_i \times DUM1997_t + \\
&\gamma_{12} DNNORDIC_i \times DUM1998_t + \gamma_{13} DOECD_i \times DNNORDIC \times DUM1998_t + \\
&\gamma_{14} DNNORDIC_i \times DUM1999_t + \gamma_{16} DNNORDIC_i \times DUM2000A + \\
&\gamma_{18} DNNORDIC_i \times DSCHENGEN_i \times DUM2001_t + \gamma_{19}(1 - DSCHENGEN_i) \times DUM2001_t + \\
&\gamma_{21} DEXTEU_i \times DDUM2004_t + \gamma_{22} DVIETNAM_i \times DUM2005_t + \gamma_{24} DBULROM_i \times DUM2007EU_t + \\
&\gamma_{26} DLIB_i \times DUM2007B_t + \gamma_{27} \times DSTRICT_i \times DUM2008_t + \\
&\rho_1 DUMCHILE_t + \rho_2 DUMLIBERIA_t + \rho_3 DUMSOMALIA_t + \mu_i + \delta_i(t - 1966) + \varepsilon_{it}; \\
&t = 1969,...,2010,\ i \in I_{143},
\end{aligned}
$$

The left hand side variable in Eq. (7) is the log of the (scaled) migration rate (migration divided by the population) of country *i* in year *t*. An overview of the policy variables included in Eq. (7) is given in Table 3.1 in the previous section and in Table B.1 in the Appendix. The incentive variables are listed in Table 4.1. One may distinguish between three sets of variables. The first set contains three "incentive" variables:

(i) the log of the ratio between the immigration stock of country *i* and the Norwegian population lagged one year, to capture effects on migration costs in that a higher number of previous immigrants from a country will make it less costly for newcomers to settle in Norway, cf. Carrington et al. (2003),
(ii) the log of GDP per capita of country *i* divided by GDP per capita for Norway lagged two years, in order to capture the relative income effect
(iii) the unemployment rate in Norway lagged one year, to capture the effect of labour market slackness on migration.[17]

As a starting point we allow the effect of all these three variables to differ between OECD and non-OECD countries by employing the variable $DOECD_i$ as an interaction variable.[18] This variable takes the value 1 if country *i* is an OECD-country and the value 0 otherwise. A priori we believe the effect of the Norwegian unemployment rate to be stronger for OECD-countries than for non-OECD countries. Hence, the expected sign of the slope parameter for $URNOR_{t-1} \times OECD_i$ is negative.

Our second set of variables in Eq. (7) involves the different policy dummies/ variables[19] that were introduced in the previous section and listed in Table B.1. Column 2 in Table B.1 is informative on which areas/countries that are influenced by the various intervention dummies. As an example, the variable $SCHENGEN_i$ is a binary variable taking the value 1 if country *i* is in the Schengen area, and zero otherwise.

[16] The model in Eq. (7) is a reduced version of a more general specification, cf. the unrestricted case in Table 4.2.

[17] We have experimented with the lag specification and present only our preferred choice. Later in Section 4 we will introduce more incentive variables, but on a subsample of countries relative to those presented here,

[18] In Table B.7 we list, the countries for which $OECD_i = 1$. Chile and Slovenia, which both became members of OECD in 2010 are treated as non-members in our sample.

[19] Not all these variables are strictly intervention variables, but as the majority of them are we label them policy variables.

Third, the model includes fixed country effects (μ) and country specific linear trends (δ).

Finally the model includes a lagged dependent variable, $\log(M/P)_{i,t-1}$, which enters with the slope parameter β_1 which is expected to be positive. Also for this variable we from the outset allow for different effects for countries that are member of OECD and countries that do not belong to this area.

The error term, ε_{it}, is assumed to be white noise.

I_{143} denotes a set with 143 current country numbers that are listed in Table B.2. All countries in this table are in the set except the countries with the current numbers 181, 182 and 183. The panel data set is unbalanced and Table B.2 gives an overview of the effective number of observations for each country in I_{143}. We have, as noted earlier, omitted some small countries and observations for which the number of immigrants to Norway in the current and previous year is less than five persons.

Table 4.1. A description of some of the variables in the empirical analysis

Variable	Definition
M_{it}	Number of immigrated persons to Norway from country *i* in year *t*
IS_{it}	Immigration stock in Norway for country *i* in year *t*
P_{it}	The population size of country *i* in year *t.*
$PNOR_t$	The population size of Norway in year *t.*
$GDPCAP_{it}$	GDP per capita in $dollar in country *i* in year *t*. In current value and PPP-adjusted
$GDPCAPNOR_t$	GDP per capita in $dollar in Norway in year *t*. In current value and PPP-adjusted
$GINIRATIO_{it}$	The Gini-coefficient of country *i* in year *t* divided by the Gini-coefficient of Norway in year *t*
UR_{it}	The unemployment rate in country *i* in year *t*
$URNOR_t$	The unemployment rate in Norway in year *t*

4.1. Main Empirical results

Our reference case is Eq. (7). However, we also consider a case where we have aggregated some of the observation units. In this case U.S.S.R., Yugoslavia and Czechoslovakia occur as observational units, whereas the countries they consist of are omitted. An overview is given in Table B.11. Furthermore, we have introduced some dummies in view of large residuals for Chile, Liberia and Somalia. Weighted least squares, with weights based on population size, is our main estimation method, but we also present estimates based on ordinary least squares.[20] The main empirical results are reported in Table 4.2.[21] In the left part of this table we consider the unrestricted case and in the right part a restricted case. The restricted case is obtained by excluding insignificant variables from the econometric specification.[22] The restricted specification cannot be rejected when tested against the unrestricted specification using an LR-test.[23] Hence, in the following we only comment on the

[20] All the calculations have been done by means of TSP version 5.0, cf. Hall and Cummins (1995). This software program contains a module for panel data analysis. However, this routine has not been utilized since we (i) consider weighted regression and (ii) incorporate country-specific linear deterministic trend effects. Thus, we have estimated the model using the routine for weighted least squares. This is facilitated by including a large amount of deterministic variables that take care of country specific effects and country specific linear trends. We do not consider random effects models in this paper. Consistent estimation of random effects models with lagged endogenous variables requires instrumental variables. We leave this for future analysis.

[21] We do not report estimates of the country-specific fixed effects and the country-specific linear trend effects in Table 4.2.

[22] All the country-specific fixed effects have been retained, as well as country-specific trend variables with estimates with t-values higher than unity in absolute value.

[23] The unrestricted model contains 328 unknown parameters including the variance of the error term and has a log-likelihood value equal to –3,444.16. The corresponding figures for the restricted model are 235 and –3,459.29. Thus using an LR-test statistic the restricted model cannot be rejected against the unrestricted model.

restricted case. Note that we do not find any heterogeneous response between OECD and non-OECD countries as far as the incentive variables are concerned.

Table 4.2. Empirical analysis of immigration to Norway from the entire world. Unrestricted and restricted specification[1]

Variable	Unrestricted case		Restricted case	
	Estimate	t-value	Estimate	t-value
$log(M/P)_{t-1}$	0.583	43.579	0.591	48.263
$DOECD \times log(M/P)_{t-1}$	0.004	0.093		
$log(IS/PNOR)_{t-1}$	0.043	2.204	0.047	3.369
$DOECD \times log(IS/PNOR)_{t-1}$	0.010	0.128		
$log(GDPCAP/GDPCAPNOR)_{t-2}$	-0.044	-0.989	-0.050	-1.537
$DOECD \times log(GDPCAP/GDPCAPNOR)_{t-2}$	-0.087	-0.548		
$URNOR_{t-1}$	-0.065	-6.511	-0.061	-7.256
$DOECD \times URNOR_{t-1}$	0.018	0.965		
DUMCHILE	1.452	3.456	1.403	3.388
DUMLIBERIA	2.439	2.751	2.442	2.779
DUMSOMALIA	1.810	3.034	1.829	3.146
DNNORDIC × DDUM1974	-0.117	-3.330	-0.110	-3.875
DOECD × DNNORDIC × DDUM1974	0.032	0.458		
DNNORDIC × DUM1977	-0.075	-2.227	-0.067	-2.401
DOECD × DNNORDIC × DUM1977	0.023	0.351		
DNNORDIC × DUM1981	0.098	3.137	0.085	3.262
DOECD × DNNORDIC × DUM1981	-0.126	-2.106	-0.076	-1.938
DPOL × DDUM1988	-0.419	-2.525	-0.384	-2.614
DNNORDIC × DUM1991	-0.143	-4.168	-0.150	-5.230
DOECD × DNNORDIC × DUM1991	0.208	2.918	0.246	6.236
DEEA × DUM1994	0.042	0.571		
DREFUGEE × DUM1997	0.765	3.536	0.777	3.925
DNNORDIC × DUM1998	0.067	1.666	0.077	2.252
DOECD × DNNORDIC × DUM1998	-0.112	-1.338	-0.133	-3.624
DNNORDIC × DUM1999	-0.210	-4.823	-0.191	-4.954
DOECD × DNNORDIC × DUM1999	0.099	1.010		
DUMMYIRAQ × DUM2000B	-0.159	-0.458		
DNNORDIC × DUM2000A	-0.056	-1.368	-0.075	-1.980
DOECD × DNNORDIC × DUM2000	-0.098	-1.230		
DNNORDIC × DSCHENGEN × DUM2001	0.194	2.465	0.197	2.757
(1-DSCHENGEN) × DUM2001	0.137	4.374	0.139	4.645
DREFUGEE × DDUM2003	-0.100	-0.472		
DEXTEU × DDUM2004	0.552	2.223	0.541	2.994
DVIETNAM × DUM2005	0.140	1.166	0.141	1.202
DVISA × DUM2006	0.009	0.305		
DBULROM × DUM2007EU	0.476	1.993	0.486	2.067
DEXTEU × DUM2007A	0.078	0.336		
DLIB × DUM2007B	0.059	1.491	0.071	2.414
DSTRICT × DUM2008	-0.194	-6.081	-0.192	-6.231
DTRANS × DUM2009A	-0.296	-1.225		
DSWI × DUM2009B	-0.147	-0.253		
Number of observations		4,193		4,193
R^2		0.948		0.946

[1] Left hand side variable $log(M/P)_t$. For the definition of the variables in the text column see Table B.1.

As seen from Table 4.2 we obtain correct signs of the estimates of the lagged endogenous variable and the incentive variables. The effect of the lagged endogenous variable is large and highly significant. The lagged stock of immigrants from a specific country relative to the Norwegian population (log-transformed) enters significantly in the specification and with a positive sign as expected. GDP per capita relative to the level in Norway (with a two years lag and log-transformed) enters as according to the theory but has only a t-value (in absolute value) of about 1.5. The Norwegian unemployment rate enters significantly. An increase in the Norwegian unemployment rate decreases, ceteris paribus, immigration to Norway.

We find that the majority of the policy intervention variables enter with the correct sign but some do not. For some of the intervention variables we find no significant effects. In Table 4.3 we give a qualitative overview of the obtained results. For the immigration regulations introduced in 1974 and 1977, respectively, the correct negative sign is obtained. The liberalisation introduced in 1981 influenced non-OECD countries positively. However for the OECD-countries there seems to be

almost no effect. The dummy affecting only Poland enters with a wrong sign but as noted earlier it is not clear that this policy change would have much effect. For the liberalization policy launched in 1991 we obtain mixed results. We obtain the correct sign for OECD-countries, but not for non-OECD countries.

Table 4.3. Expected sign of estimated coefficients attached to intervention variables and realized signs. Unrestricted specification[1]

Variable	Expected sign	Realized sign
DNNORDIC×DDUM1974	Negative	Negative
DOECD×DNNORDIC×DDUM1974		
DNNORDIC×DUM1977	Negative	Negative
DOECD×DNNORDIC×DUM1977		
DNNORDIC×DUM1981	Positive	Positive
DOECD×DNNORDIC×DUM1981	Positive	Negative
DPOL×DDUM1988	Positive	Negative
DNNORDIC×DUM1991	Yes	No
DOECD×DNNORDIC×DUM1991	Yes	Yes
DREFUGEE×DUM1997	Yes	Yes
DNNORDIC×DUM1998	Yes	Yes
DOECD×DNNORDIC×DUM1998	Yes	No
DNNORDIC×DUM1999	Positive	Negative
DOECD×DNNORDIC×DUM1999		
DUMMYIRAQ×DUM2000B		
DNNORDIC×DUM2000A	Positive	Negative
DOECD×DNNORDIC×DUM2000A		
DNNORDIC ×DSCHENGEN×DUM2001	Positive	Positive
(1-DSCHENGEN)×DUM2001	Negative	Positive
DREFUGEE×DDUM2003		
DEXTEU×DDUM2004	Positive	Positive
DVIETNAM×DUM2005	Positive	Positive
DVISA× DUM2006		
DBULROM×DUM2007EU	Positive	Positive
DEXTEU×DUM2007A		
DLIB×DUM2007B	Positive	Positive
DSTRICT×DUM2008	Negative	Negative
DTRANS×DUM2009A		
DSWI×DUM2009B		

[1] Left hand side variable $log(M/P)_t$. For the definition of the variables in the text column see Table B.1. Empty cells correspond to insignificant estimates.

A liberalization aimed at refugees was introduced in 1997. A correct sign is obtained for the estimated coefficient attached to this variable. For the liberalization launched in 1998 we obtain mixed results. For countries outside the OECD-area we obtain, as expected, a significant positive effect. However, for countries in the OECD-area the sign is negative. A wrong sign is also obtained in connection with the liberalization in 1999. The Schengen-area convention introduced in 2001 is expected to increase immigration to Norway from countries in the Schengen-area but to lead to less immigration from the countries outside the Schengen-area. Let us first consider the Schengen-area. For this area we obtain the right positive sign, but, against intuition, the estimate of the effect on the non-Schengen area is also positive and in magnitude larger than the corresponding estimate of the Schengen-area. In 2003 a stricter regime for family-reunion was introduced. This intervention is restricted to influence potential immigrants from Afghanistan, Iraq, Somalia and countries in former Yugoslavia. We are unable to find any negative effect of this intervention variable. In 2004 there was an extension of the EU/EEA area with some new East-European countries. The consequence was that people from these new countries obtained easier access to Norway. Hence, the sign of the estimated effect is in accordance with our a priori expectation. The dummy that captures the positive immigration effect from Philippines and Iraq to Norway enters with the correct sign, but the effect is not very significant. In 2007 there was another extension of the EU/EEA area since Bulgaria and Romania were included. In accordance with our expectations we obtain a positive effect of this extension. The stricter demands for family reunion introduced in 2008 had, as expected, a significant negative influence.

We have also included dummies for the three countries Chile, Liberia and Somalia. A look at preliminary estimation results revealed that the residuals for these three countries

were especially large in some years. Hence the dummy variables DUMCHILE, DUMLIBERIA and DUMSOMALIA are included to account for these large residuals.[24] The estimates of the three attached parameters are positive and significant.

On the right hand part of Table A.1 we report the estimation results after having aggregated over some countries in Eastern Europe. With this aggregation we obtain time series for U.S.S.R., Yugoslavia and Czechoslovakia for the entire observation period. In qualitative terms estimation on this data set produces results that resemble those in the reference model. Quantitatively there are some changes in the magnitude of the parameter estimates. The estimate attached to the relative income variable is somewhat higher in absolute value and somewhat more significant than in the reference model, whereas it is the other way around for the Norwegian unemployment rate. With respect to the intervention dummies the wrong signs that occurred in conjunction with the reference model are still present here. Thus the results seem to be fairly robust with respect to whether the aggregation is carried through or not.

In Table 4.4 we report two special cases of the reference model. In the third column we report the estimates of a model where the parameters attached to incentive variables are constrained to zero. The main impression is that the parameter estimates attached to the policy integrations variables are not much changed qualitatively by the zero restrictions. The sign of the estimates are the same as in the reference specification. So the estimates of the effects of the intervention variables seem to be fairly robust with respect to whether the incentive variables are included or not.

In the column next to the last of Table 4.4 we report the estimates of a model where all the country specific trend variables have been omitted. For this case we obtain a higher estimate of the coefficient attached to the lagged endogenous variable and a positive significant effect of the relative GDP-variable. Thus, the presence of country specific linear trends seems to be necessary in order to get the right sign of the relative GDP-effect. The model with omitted country specific linear trend variables contains 170 parameters (including the variance of the error term) and has a log-likelihood value equal to −3730.26. Thus if one tests this specification against the reference specification one obtains a χ^2 value of 572.4. The associated degree of freedom is 58. Hence, the specification without country specific trends is clearly rejected.

Our main estimation method is weighted least squares with population as weights. The reason for this is that we are pooling countries that differ substantially in population size. We have also estimated the reference model and the model with aggregation of East-European countries with ordinary least squares. The results are reported in Table A.2 and Table A.3. Even if most of the estimates retain their sign they differ somewhat from those obtained when using weighted least squares with population weights and so does the estimation uncertainty. For instance if one looks at Table A.2 the variable representing the immigration restrictions launched in 1977 still have the right sign, but the magnitude of the estimated slope coefficient of this variables has been almost halved and it has now turned insignificant. Thus, it makes a difference which estimation method we use.[25]

[24] The binary variable DUMCHILE is one in 1987 and 1988 and zero in all other years. The binary variable DUMLIBERIA is one in 2003 and 2004 and zero in all other years. The binary variable DUMSOMALIA is one in the years 1988–2010 and zero in all the years before 1988.

[25] We have also estimated the reference model with weighted least squares using immigration weights. However, some of the results appear rather strange. The estimate of the slope parameter attached to the immigration stock now turns negative and besides the coefficient of the lagged endogenous variable is substantially lower than when weighted least squares is based on population weights.

Table 4.4. Empirical analysis of immigration to Norway from the entire world. Restricted specification. Model without incentive variables and model without trend variables[1]

Variable	Reference (restricted)		Without incentive variables		Without trend variables	
	Estimate	t-value	Estimate	t-value	Estimate	t-value
$log(M/P)_{t-1}$	0.591	48.263	0.606	52.262	0.751	72.225
$log(IS/PNOR)_{t-1}$	0.047	3.369			0.045	3.767
$log(GDPCAP/GDPCAPNOR)_{t-2}$	-0.050	-1.537			0.255	12.747
$URNOR_{t-1}$	-0.061	-7.256			-0.060	-6.872
DUMCHILE	1.403	3.388	1.457	3.505	1.363	3.114
DUMLIBERIA	2.442	2.779	2.319	2.629	2.178	2.428
DUMSOMALIA	1.829	3.146	1.835	3.145	0.938	1.795
DNNORDIC×DDUM1974	-0.110	-3.875	-0.087	-3.142	-0.074	-2.538
DNNORDIC×DUM1977	-0.067	-2.401	-0.048	-1.755	0.029	1.015
DNNORDIC×DUM1981	0.085	3.262	0.073	3.143	0.171	6.849
DOECD×DNNORDIC×DUM1981	-0.076	-1.938	-0.132	-3.481	-0.124	-3.420
DPOL×DDUM1988	-0.384	-2.614	-0.374	-2.547	0.013	0.014
DNNORDIC×DUM1991	-0.150	-5.230	-0.251	-12.757	-0.009	-0.309
DOECD×DNNORDIC×DUM1991	0.246	6.236	0.195	5.154	0.157	4.097
DREFUGEE×DUM1997	0.777	3.925	0.606	3.266	0.201	1.664
DNNORDIC×DUM1998	0.077	2.252	0.202	6.641	0.146	4.142
DOECD×DNNORDIC×DUM1998	-0.133	-3.624	-0.160	-4.400	-0.171	-4.690
DNNORDIC× DUM1999	-0.191	-4.954	-0.141	-3.697	-0.191	-4.692
DNNORDIC× DUM2000A	-0.075	-1.980	-0.072	-1.906	-0.068	-1.705
DNNORDIC×DSCHENGEN×DUM2001	0.197	2.757	0.203	2.861	0.373	6.543
(1-DSCHENGEN)×DUM2001	0.139	4.645	0.101	3.477	0.184	5.879
DEXTEU×DDUM2004	0.541	2.994	0.582	3.276	0.787	6.294
DVIETNAM×DUM2005	0.141	1.202	0.102	0.865	0.150	1.610
DBULROM×DUM2007EU	0.486	2.067	0.556	2.353	0.920	4.293
DLIB×DUM2007B	0.071	2.414	0.125	4.344	0.101	3.302
DSTRICT×DUM2008	-0.192	-6.231	-0.148	-4.867	-0.192	-6.093
Number of observations	4,193		4,248		4,193	
R^2	0.946		0.945		0.936	

[1] Left hand side variable $log(M/P)_t$. For the definition of the variables in the text column see Table B.1.

In the second column of Table B.2 the effective number of observations for each country involved in the estimation of the reference model is reported. For some of the countries the number of effective observations is rather low. In light of a potential problem of biased estimation stemming from few observations in the time dimension in dynamic models with fixed effects, cf. Nickell (1981), we have reestimated the reference model after having thrown out countries with fever than 15 observations . The estimates in this case are reported in Table A.4 and they show there is no substantial change in any of the estimates, which may imply that there are no "Nickell-bias".

4.2. Region-specific results

Even though accounting for heterogeneity in response between OECD and non-OECD countries, the reference model still relies on many implicit homogeneity assumptions. As yet another robustness analysis we have estimated the reference model on subsamples corresponding to various geographical areas. The results are reported in the right hand part of Table 4.5. We consider four areas, Africa, Asia, America and Europe. For each region the effects of all incentive and policy variables are now allowed to vary but they are still equal for each country within each region. For these four regions we have, respectively, 1,114; 1,034; 776; and 1,136 observations. Thus estimating on region-specific data implies that fewer observations are involved than in the pooled estimation. However, some of the intervention variables now are redundant since they do not influence all areas.

For Africa we obtain an estimate of the income effect that is both insignificant and has the wrong sign. The correct sign is obtained for the three other areas, but none of the estimates are very significant. Europe is the area that has the most significant estimate of the income effect, but even here the absolute value of the t-value is only about 1.5 as in our reference model.

For the unemployment rate we obtain the correct sign in all four areas. Furthermore the estimates are significant. They vary somewhat in magnitude. The strongest effects are, perhaps somewhat counter-intuitively, found for Africa and Asia.

Table 4.5. Empirical model of immigration to Norway from specific regions. Restricted specification. Weighted least squares[1]

Variable	143 countries (restricted)		Africa		Asia		America		Europa	
	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value	Estimate	t-value
$log(M/P)_{t-1}$	0.591	48.263	0.463	17.621	0.627	25.459	0.423	12.533	0.621	26.068
$log(IS/PNOR)_{t-1}$	0.047	3.369	0.061	2.308	0.040	1.296	0.168	3.268	0.031	1.219
$log(GDPCAP/GDPCAPNOR)_{t-2}$	-0.050	-1.537	0.072	1.314	-0.068	-0.770	-0.046	-0.413	-0.110	-1.474
$URNOR_{t-1}$	-0.061	-7.256	-0.063	-2.959	-0.074	-4.175	-0.039	-2.184	-0.038	-3.290
DUMCHILE	1.403	3.388					1.755	5.261		
DUMLIBERIA	2.442	2.779	2.466	3.282						
DUMSOMALIA	1.829	3.146	1.926	4.188						
DNNORDIC×DDUM1974	-0.110	-3.875	-0.090	-1.066	-0.140	-2.367	-0.188	-3.335	0.032	0.784
DNNORDIC×DUM1977	-0.067	-2.401	-0.071	-0.928	-0.057	-0.989	-0.007	-0.131	-0.118	-2.950
DNNORDIC ×DUM1981	0.085	3.262	-0.023	-0.381	0.123	2.502	-0.050	-0.774	0.169	1.664
DOECD×DNNORDIC×DUM1981	-0.076	-1.938			-0.008	-0.058	-0.078	-1.089	-0.142	-1.353
DPOL×DDUM1988	-0.384	-2.614							-0.369	-4.760
DNNORDIC ×DUM1991	-0.150	-5.230	-0.060	-0.921	-0.124	-2.149	-0.148	-2.206	-0.137	-1.413
DOECD×DNNORDIC×DUM1991	0.246	6.236			0.299	2.016	0.169	2.289	0.226	2.260
DREFUGEE×DUM1997	0.777	3.925	0.178	0.654	1.026	2.510			0.261	1.377
DNNORDIC×DUM1998	0.077	2.252	0.088	1.085	0.085	1.232	0.002	0.030	0.102	1.584
DOECD ×DNNORDIC×DUM1998	-0.133	-3.624			-0.172	-1.235	-0.026	-0.387	-0.151	-2.286
DNNORDIC×DUM1999	-0.191	-4.954	-0.002	-0.089	-0.265	-3.343	-0.221	-2.731	-0.039	-0.720
DNNORDIC×DUM2000A	-0.075	-1.980	-0.247	-2.707	-0.077	-0.990	0.159	1.999	-0.131	-2.448
DNNORDIC×DSCHENGEN×DUM2001	0.197	2.757							0.189	3.680
(1-DSCHENGEN) ×DUM2001	0.139	4.645	0.226	3.162	0.178	2.887	-0.085	-1.346	0.163	3.501
DEXTEU×DDUM2004	0.541	2.994			0.078	0.048			0.523	5.313
DVIETNAM×DUM2005	0.141	1.202			0.157	0.843				
DBULROM×DUM2007EU	0.486	2.067							0.553	4.084
DLIB×DUM2007B	0.071	2.414	-0.003	-0.044	0.094	1.596	0.094	1.558	0.007	0.111
DSTRICT×DUM2008	-0.192	-6.231	-0.112	-1.636	-0.228	-3.722	-0.170	-2.691	-0.183	-2.768
Number of observations	4,193		1,114		1,034		706		1,136	
R^2	0.946		0.872		0.937		0.874		0.968	

[1] Left hand side variable $log(M/P)_t$. For the definition of the variables in the text column see Table B.1. Note that some of the variables in the text column are redefined when one considers estimation using data only from a specific region. For example in the case of Africa, *DREFUGEE* degenerates to an indicator dummy for Somalia, whereas it for Asia degenerates to a dummy for Afghanistan and Iraq. In the case of Europe, *DREFUGEE* degenerates to an indicator dummy for countries from former Yugoslavia.

As far as the immigration stock is concerned we obtain an estimate with the correct sign for all areas, except Europe. The latter result may not be surprising as we would expect it to be easier for a European to establish a social life and get access to housing and work than those coming from other regions. The estimates vary substantially in magnitude for the other regions. The largest effect is found for America and the smallest one for Europe. Generally, more of the intervention variables are insignificant as compared to the reference estimation. An interpretation of this may be that it is important to pool the region-specific data to obtain more reliable inference about the effect of the intervention variables.

For the restrictions introduced in 1974 we obtain significant negative estimates for all regions, except Europe, for which we obtain a positive but insignificant estimate. In connection with the new restrictions in 1977 we obtain the a priori expected sign for all areas, but the estimates are only significant for Europe. The sign problem that was present in conjunction with the liberalisation introduced in 1999 is still present for the regional specific estimates. The wrong sign is obtained in all the four areas, and for Asia and America the estimates are also significant. For all areas except America we get a significant estimate with the wrong sign attached to the variable picking up the effect of the 2001 Schengen-treaty on non-Schengen members. In general the conclusion regarding the effects of policy interventions seem to hold also based on the regional estimates.

4.3. Changes in the income distribution

As commented on earlier in the paper changes in the income distribution in both the origin and destination country may influence immigration. It is relevant to ask whether this effect has some importance from an empirical point of view. For 101 of the 143 countries considered when estimating the reference model we have time series for the Gini-coefficient. Using this subsample we reestimated the reference

model after having added a second order polynomial in the ratio between the Gini-coefficent of the origin and host country (that is Norway). Whereas the reference model was estimated using 4,193 observations the augmented model is estimated with 3,083 observations. The results are shown in Table 4.6 with and without the variable constructed as a time series of Gini-coefficients. We obtain a significant positive estimate of the first order variable and a significant negative estimate of the quadratic term.[26] This result is in line with other findings in the literature referred to in Section 2. In this augmented model the estimate of the income ratio is smaller and less significant than in the reference model, the t-value now being only around 0.5 in absolute value. Generally the estimates of the common parameters in the augmented and reference model are rather equal. We now get a smaller and insignificant estimate of the coefficient attached to the intervention directed towards refugees from 1997. This is not surprising since some of the countries influenced by this variable are omitted from the subset of data used in the conjunction with the subsample estimation. But by and large, using a smaller set of countries for which we have data on income distribution over time does not change our conclusions with regard to the qualitative effects of policy interventions

Table 4.6. Empirical analysis of immigration to Norway from the entire world. Models without and with time series of Gini-variables[1]

Variable	Without Gini-variables		With Gini-variables	
	Estimate	t-value	Estimate	t-value
log(M/P)$_{t-1}$	0.591	48.263	0.578	39.928
log(IS/PNOR)$_{t-1}$	0.047	3.369	0.058	3.515
log(GDPCAP/GDPCAPNOR)$_{t-2}$	-0.050	-1.537	-0.020	-0.474
URNOR$_{t-1}$	-0.061	-7.256	-0.056	-5.973
GINIRATIO			0.900	4.574
GINIRATIO SQUARED			-0.202	-3.579
DUMCHILE	1.403	3.388	1.470	3.315
DUMLIBERIA	2.442	2.779		
DUMSOMALIA	1.829	3.146		
DNNORDIC×DDUM1974	-0.110	-3.875	-0.101	-3.236
DNNORDIC×DUM1977	-0.067	-2.401	-0.060	-1.977
DNNORDIC×DUM1981	0.085	3.262	0.073	2.499
DOECD×DNNORDIC×DUM1981	-0.076	-1.938	-0.089	-2.073
DPOL×DDUM1988	-0.384	-2.614	-0.413	-2.552
DNNORDIC × DUM1991	-0.150	-5.230	-0.165	-5.071
DOECD×DNNORDIC×DUM1991	0.246	6.236	0.252	9.861
DREFUGEE×DUM1997	0.777	3.925	0.488	0.707
DNNORDIC× DUM1998	0.077	2.252	0.094	2.476
DOECD× DNNORDIC× DUM1998	-0.133	-3.624	-0.117	-2.899
DNNORDIC× DUM1999	-0.191	-4.954	-0.211	-4.939
DNNORDIC× DUM2000A	-0.075	-1.980	-0.042	-1.002
DNNORDIC×DSCHENGEN×DUM2001	0.197	2.757	0.197	2.544
(1-DSCHENGEN)×DUM2001	0.139	4.645	0.153	4.584
DEXTEU×DDUM2004	0.541	2.994	0.531	2.640
DVIETNAM×DUM2005	0.141	1.202	0.164	1.157
DBULROM×DUM2007EU	0.486	2.067	0.461	1.673
DLIB×DUM2007B	0.071	2.414	0.062	1.867
DSTRICT×DUM2008	-0.192	-6.231	-0.205	-5.580
Number of observations	4,193		3,083	
R^2	0.946		0.953	

[1] Left hand side variable *log(M/P)$_t$*. For the definition of the variables in the text column see Table B.1. Note that some of the variables in the text column have to be redefined when one considers estimation using data only for countries for which we have access to time series of Gini coefficients. For example *DREFUGEE* degenerates to an indicator dummy for Croatia, Macedonia and Slovakia, since we, cf. Table B.2, do not have income distribution data for Afghanistan, Iraq, Somalia, Bosnia Herzegovina and Montenegro and Serbia.

We have also estimated augmented regional-specific models for Africa, Asia, America and Europe, respectively. The results are reported in tables A.5-A.8. The

[26] Let GINIRATIO$_{it}$ denote the ratio between the Gini-coefficient in country *i* and Norway in year *t*. In the estimated regression the effect of the variable is specified as $\hat{\xi}_1 GINIRATIO_{it} + \hat{\xi}_2 GINIRATIO_{it}^2$, where $\hat{\xi}_1 = 0.9$ and $\hat{\xi}_2 = -0.202$. Note that the derivative is given by $\hat{\xi}_1 + 2\hat{\xi}_2 GINIRATIO$. In our sample GINIRATIO varies between 0.697 and 2.915. Thus an increase in GINIRATIO yields an increase in the immigration.

general impression is that the Gini-coefficent-ratio variables turn out as rather insignificant in these models. A reason for this may be that there is less variation in these variables if one only considers the separate regions as compared to pooling them together. The most significant estimates are found for Asia. Thus summing up the evidence for the effect of the change in the relative income distribution is somewhat mixed.

4.4. The importance of the unemployment rate in the origin country

In the reference model the Norwegian unemployment rate enters as a significant explanatory variable with a negative sign. An interesting question is whether the unemployment rate in the origin country also plays a role. However, we have only unemployment rates for a small group of selected countries, mostly OECD-countries. In Table 4.7 we consider a subsample estimation using data for 31 countries in which we add the foreign unemployment rate lagged one year as an additional regressor.[27] As is seen from the left hand part of Table 4.7 we obtain a significant positive estimate of the unemployment level in the origin country and as before a negative coefficient for the Norwegian unemployment level. The difference in absolute value suggests that the two unemployment variables should be specified as two separate variables in the regression. Just using the difference in the unemployment rates does not seem to be empirically valid. Note that for this subsample we obtain a significant negative estimate of the relative income variable as expected. However, we still struggle with some of the signs of the intervention variables, for instance the two liberalization interventions in 1999 and 2000. In the right hand part of Table 4.7 we have also added the second order polynomial in the Gini-coefficient ratio but the two involved variables are highly insignificant for this subset of countries.

Table 4.7. Empirical analysis of immigration to Norway from countries for which one observes the origin unemployment level[1]

Variable	Without GINI variables		With GINI variables	
	Estimate	t-value	Estimate	t-value
$log(M/P)_{t-1}$	0.594	22.704	0.590	22.735
$log(IS/PNOR)_{t-1}$	0.065	2.067	0.083	2.308
$log(GDPCAP/GDPCAPNOR)_{t-2}$	-0.189	-2.770	-0.238	-3.128
$URNOR_{t-1}$	-0.043	-4.832	-0.039	-4.201
UR_{t-1}	0.010	2.834	0.009	2.484
GINIRATIO			-0.086	-0.262
GINIRATIO SQUARED			0.016	0.140
DNNORDIC×DDUM1974	-0.061	-3.875	-0.065	-1.939
DNNORDIC×DUM1977	-0.073	-2.545	-0.077	-2.641
DNNORDIC×DUM1981	-0.053	-0.296	-0.067	-0.367
DOECD×DNNORDIC×DUM1981	0.006	0.031	0.012	0.069
DPOL×DDUM1988	-0.664	-3.472	-0.650	-3.270
DNNORDIC×DUM1991	0.182	0.986	0.169	0.898
DOECD×DNNORDIC×DUM1991	-0.075	-0.408	-0.068	-0.360
DNNORDIC×DUM1998	-0.045	-0.279	-0.058	-0.340
DOECD×DNNORDIC×DUM1998	0.006	0.037	0.023	0.141
DNNORDIC×DUM1999	-0.109	-2.532	-0.109	-2.462
DNNORDIC×DUM2000A	-0.116	-2.735	-0.120	-2.742
DNNORDIC×DSCHENGEN×DUM2001	0.203	4.361	0.190	3.919
(1-DSCHENGEN)×DUM2001	0.054	1.501	0.042	1.133
DEXTEU×DDUM2004	0.428	3.253	0.405	2.905
DLIB×DUM2007B	-0.016	-0.400	-0.014	-0.337
DSTRICT×DUM2008	-0.063	-1.476	-0.016	-0.346
Number of observations	1,052		982	
R^2	0.984		0.980	

[1] Left hand side variable $log(M/P)_t$. For the countries included in this estimation see Table B.8. For the definition of the variables in the text column see Table B.1. Note that some of the variables in the text column are redefined when one considers estimation using data for countries for which one has access to origin unemployment rates. For example *DEXTEU* is now one for Estonia, Hungary, Poland and Slovakia and zero for all other countries included in the estimation of the econometric relation.

[27] The countries are listed in Table B.8.

4.5. Some counterfactual exercises

It is of interest to use the estimated models for counterfactual analysis. Below we will consider three such exercises. The first question we try to answer is how the immigration to Norway had developed if the intervention policies had not been implemented? Such an analysis is not without problems. First, we are unable to obtain a "correct" sign of all the estimated parameters attached to the intervention variables. Second, we implicitly will have to assume that the estimates of the slope parameters are not affected by the counterfactual situation. Third, the dataset is, as mentioned earlier, unbalanced, which creates problem for the dynamic simulation of all the countries in the model. Finally, it is a very partial exercise in that all other variables of the model are assumed unaffected. If immigration is higher, several of the right hand side variables will possibly be affected to and these changes are not included in the simulations. One obvious example is a change that increases immigration and will most likely also increase the stock of immigrants unless there is a similar increase in emigration. The latter effect is not included in these simulations. As an illustrative exercise we consider dynamic simulations for the 62 countries listed in Table B.9. The point of departure is the reference model. However, we have redesigned it somewhat to focus only on the intervention dummies that enter with correct sign in the model.[28] The model we utilize for dynamic simulations resembles the one that was specified in Eq. (7)

Note that estimation of this modified model is still based on data for 143 observation units. The weighted least squares estimates are reported in Table 4.8. Since the first intervention effect occurs in 1974, we start the dynamic simulation in this year. As a reference we simulate a model that is similar to the specification in Eq. (7), but somewhat modified as explained below. For each year we deduce the total number of immigrants in the 62 countries listed in Table B.9. In the counterfactual simulation we set the following coefficients to zero: γ_1, γ_3, γ_5, γ_9, γ_{11}, γ_{18}, γ_{21}, γ_{22}, γ_{24} and γ_{27}. The simulation results are reported in Table 4.9. In the first column one finds the reference path, whereas the counterfactual path is reported in the second column. The two last columns contain the difference in immigration between the counterfactual and the reference path in absolute and relative terms. In 1970s we note the impact of the restrictions launched in 1974 and 1977. Our estimate is that immigration to Norway due to these two policies was reduced by about almost one third by 1980. The effects increase over time due to the lagged responses of the policies. The 1981-liberalisation reduced the effects of the more restrictive policies significantly during the 1980s. The 1991 liberalisation lowered the effects of the previous immigration further so that by the mid 1990s there were hardly any effects left of the policies from the 1970s. From the mid 2000s liberalisation within the EU and EEA changed the effects of policies and has contributed to higher immigration compared to the counterfactual with no policy changes. The immigration corresponding to the counterfactual path exceeds the immigration according to the reference path until 2004. Because of the liberalising policy changes during the latter part of the sample, the sign of the absolute and relative differences switches for these years.

To assess the importance of a relatively high growth in the Norwegian GDP level per capita relative to many other countries we have carried out a counterfactual simulation where we have changed the path of Norwegian GDP per capita. Before 1978 the GDP level per capita was higher in Sweden than in Norway, but since then it has been the other way around. In light of this we investigate what would have happen with immigration to Norway if the GDP level per capita in Norway had been the same as for Sweden in the years from 1978 on. In Table B.10 we report the time series for the GDP levels per capita for Norway and Sweden in the reference path

[28] We choose to retain the variables *DNNORDIC×DUM1998*, *DOECD×DNNORDIC×DUM1998* and (1-*DSCHENGEN*)*×DUM2001*. Omitting also these variables implied strange results for the incentive parameters. However, in the dynamic simulations these variables are retained both in the reference and counterfactual case. Thus we do not interpret these variables as intervention variables. Rather their role is to increase the explanatory power of the model.

and the time series for Norway under the counterfactual path. The results from this counterfactual experiment are reported in Table 4.10. The main impression is that the relative higher growth Norway has experienced than many other countries has not been very important for immigration.[29] Over the years 1980-2010 the number of immigrants to Norway from the 62 countries involved in the counterfactual experiment would have been about 23 000 fewer if the Norwegian GDP level per capita had been as the Swedish one from 1978 on. This represents 2.6 per cent reduction in immigration from the involved countries over the indicated time span.

The Norwegian unemployment rate is a significant explanatory variable when quantifying the econometric relation underlying the simulations. Compared to many other countries the Norwegian unemployment rate has been rather low over time. Counterfactually one may ask what would have been the immigration to Norway if cet. par. the Norwegian unemployment rate had been on a higher level. In Table 4.11 we report the results from a counterfactual simulation in which the Norwegian unemployment rate is assumed to be one percentage point higher (in all years) than in the reference case. Over the years 1974-2010 the number of immigrants to Norway from the 62 countries involved in the counterfactual experiment would have been 165,000 lower if the Norwegian unemployment rate had followed this alternative path. In relative terms this represents a reduction in immigration equal to about 18 per cent. Thus the Norwegian labour market conditions have had a substantial effect on immigration according to our analysis. We can use this simulation to interpret changes in immigration that took place in some period during the estimation period. From the end of the 1980s to the early 1990s when unemployment in Norway more than doubled, immigration motivated by people trying to find work was very low, cf. Figure 1.2. When the economy picked up during the 1990s job prospects improved and immigration increased. The recession of the early 2000s is noticeable but small while the gradual decline in unemployment after 2005 has increased immigration.

Table 4.8. Empirical analysis of immigration to Norway from the entire world. Estimated parameters in model used for dynamic simulation[1]

Variable	Parameter	Estimate	t-value
$Log(M/P)_{t-1}$	β_1	0.609	51.423
$Log(IS/PNOR)_{t-1}$	β_3	0.030	2.282
$Log(GDPCAP/GDPCAPNOR)_{t-2}$	β_5	-0.050	-1.528
$URNOR_{t-1}$	β_7	-0.084	-13.076
DUMCHILE	ρ_1	1.401	3.343
DUMLIBERIA	ρ_2	2.373	2.669
DUMSOMALIA	ρ_3	1.765	3.001
DNNORDIC×DDUM1974	γ_1	-0.103	-3.593
DNNORDIC×DUM1977	γ_3	-0.050	-1.824
DNNORDIC×DUM1981	γ_5	0.085	3.804
DOECD×DNNORDIC×DUM1991	γ_9	0.136	3.785
DREFUGEE×DUM1997	γ_{11}	0.777	3.876
DNNORDIC×DUM1998	γ_{12}	-0.151	-6.059
DOECD×DNNORDIC×DUM1998	γ_{13}	-0.114	-3.105
DNNORDIC×DSCHENGEN×DUM2001	γ_{18}	0.116	1.687
(1-DSCHENGEN)×DUM2001	γ_{19}	0.056	2.899
DEXTEU×DDUM2004	γ_{21}	0.819	5.719
DVIETNAM×DUM2005	γ_{22}	0.170	1.435
DBULROM×DUM2007EU	γ_{24}	0.443	1.869
DSTRICT×DUM2008	γ_{27}	-0.153	-7.130
Number of observations		4,193	
R^2		0.946	

[1] Left hand side variable $log(M/P)_t$. For the definition of the variables in the text column see Table B.1.

[29] The GDP per capita ratio variable (between any origin country and Norway) enters with a two period lag and 1980 is the first year with a difference between the counterfactual and reference path.

Table 4.9. Empirical analysis of immigration to Norway from 62 countries in a counterfactual situation with absence of intervention policies

Year	Reference path	Counterfactual path	Absolute difference	Difference in percent
1974	16,768	17,816	1,048	6.3
1975	17,472	19,297	1,825	10.4
1976	17,745	19,717	1,972	11.1
1977	17,083	20,394	3,311	19.4
1978	18,016	21,581	3,565	19.8
1979	17,277	22,023	4,746	27.5
1980	16,356	22,349	5,993	36.6
1981	18,523	23,417	4,894	26.4
1982	19,125	23,615	4,490	23.5
1983	18,832	22,855	4,023	21.4
1984	17,308	21,191	3,883	22.4
1985	17,649	20,816	3,167	17.9
1986	20,048	21,939	1,891	9.4
1987	23,737	24,800	1,063	4.5
1988	27,154	27,542	388	1.4
1989	22,597	25,228	2,631	11.6
1990	17,789	21,264	3,475	19.5
1991	18,735	20,212	1,477	7.9
1992	18,801	19,414	613	3.3
1993	17,996	18,593	597	3.3
1994	18,009	18,354	345	1.9
1995	18,862	19,253	391	2.1
1996	20,156	20,940	784	3.9
1997	22,292	24,251	1,959	8.8
1998	23,907	24,365	458	1.9
1999	27,977	26,005	-1,972	-7.0
2000	26,609	27,466	857	3.2
2001	26,378	28,402	2,024	7.7
2002	27,488	29,337	1,849	6.7
2003	28,204	29,372	1,168	4.1
2004	26,254	28,350	2,096	8.0
2005	28,165	28,179	14	0.0
2006	31,427	31,831	404	1.3
2007	41,971	40,793	-1,178	-2.8
2008	50,484	47,932	-2,552	-5.1
2009	51,626	48,150	-3,476	-6.7
2010	49,397	50,782	1,385	2.8
Sum	898,219	957,824	59,605	6.6

Table 4.10. Empirical analysis of immigration to Norway from 62 countries in a counterfactual situation with lower Norwegian growth in GDP per capita

Year	Reference path	Counterfactual path	Absolute difference	Difference in percent
1974	16,768	16,768	0	0.0
1975	17,472	17,440	-32	-0.2
1976	17,745	17,392	-353	-2.0
1977	17,083	17,201	118	0.7
1978	18,016	17,714	-302	-1.7
1979	17,277	17,778	501	2.9
1980	16,356	17,837	1,481	9.1
1981	18,523	19,466	943	5.1
1982	19,125	20,070	945	4.9
1983	18,832	19,662	830	4.4
1984	17,308	18,372	1,064	6.1
1985	17,649	18,128	479	2.7
1986	20,048	19,147	-901	-4.5
1987	23,737	21,617	-2,120	-8.9
1988	27,154	24,040	-3,114	-11.5
1989	22,597	22,155	-442	-2.0
1990	17,789	18,766	977	5.5
1991	18,735	17,828	-907	-4.8
1992	18,801	17,094	-1,707	-9.1
1993	17,996	16,326	-1,670	-9.3
1994	18,009	16,071	-1,938	-10.8
1995	18,862	16,782	-2,080	-11.0
1996	20,156	18,202	-1,954	-9.7
1997	22,292	21,158	-1,134	-5.1
1998	23,907	21,415	-2,492	-10.4
1999	27,977	22,802	-5,175	-18.5
2000	26,609	24,104	-2,505	-9.4
2001	26,378	26,005	-373	-1.4
2002	27,488	27,438	-50	-0.2
2003	28,204	27,845	-359	-1.3
2004	26,254	27,722	1,468	5.6
2005	28,165	29,054	889	3.2
2006	31,427	31,395	-32	-0.1
2007	41,971	42,125	154	0.4
2008	50,484	46,420	-4,064	-8.1
2009	51,626	50,130	-1,496	-2.9
2010	49,397	51,107	1,710	3.5
Sum	898,219	874,574	-23,645	-2.6

Table 4.11. Empirical analysis of immigration to Norway from 62 countries in a counterfactual situation with a higher Norwegian unemployment rate

Year	Reference path	Counterfactual path	Reduction in immigrated persons	Reduction in percent
1974	16,768	15,418	-1,350	-8.1
1975	17,472	15,237	-2,235	-12.8
1976	17,745	14,729	-3,016	-17.0
1977	17,083	14,293	-2,790	-16.3
1978	18,016	14,551	-3,465	-19.2
1979	17,277	14,501	-2,776	-16.1
1980	16,356	14,499	-1,857	-11.4
1981	18,523	15,811	-2,712	-14.6
1982	19,125	16,349	-2,776	-14.5
1983	18,832	16,067	-2,765	-14.7
1984	17,308	15,035	-2,273	-13.1
1985	17,649	14,851	-2,798	-15.9
1986	20,048	15,701	-4,347	-21.7
1987	23,737	17,752	-5,985	-25.2
1988	27,154	19,683	-7,471	-27.5
1989	22,597	18,082	-4,515	-20.0
1990	17,789	15,253	-2,536	-14.3
1991	18,735	14,451	-4,284	-22.9
1992	18,801	13,851	-4,950	-26.3
1993	17,996	13,246	-4,750	-26.4
1994	18,009	13,064	-4,945	-27.5
1995	18,862	13,696	-5,166	-27.4
1996	20,156	14,889	-5,267	-26.1
1997	22,292	17,929	-4,363	-19.6
1998	23,907	18,297	-5,610	-23.5
1999	27,977	19,264	-8,713	-31.1
2000	26,609	20,177	-6,432	-24.2
2001	26,378	21,661	-4,717	-17.9
2002	27,488	22,904	-4,584	-16.7
2003	28,204	23,267	-4,937	-17.5
2004	26,254	23,136	-3,118	-11.9
2005	28,165	24,219	-3,946	-14.0
2006	31,427	26,636	-4,791	-15.2
2007	41,971	36,935	-5,036	-12.0
2008	50,484	40,638	-9,846	-19.5
2009	51,626	43,207	-8,419	-16.3
2010	49,397	43,798	-5,599	-11.3
Sum	898,219	733,078	-165,141	-18.4

5. Conclusions

Using unbalanced panel data we have modelled migration to Norway from countries all over the world during the period 1969–2010. Our main focus is to assess the effects of immigration policies on immigration to Norway. Immigration policies have been proxied using a number of time series dummy variables. These policy intervention variables have been included in a standard economic model of migration that accounts for the effects of incentive variables such as relative income, income distribution and labour market features. Unobserved country-specific heterogeneity is modelled by including country specific intercepts and linear trends in order to take into account geographical distance, culture and language differences and other fairly stable effects that might affect migration from individual countries to Norway.

The majority of policy intervention variables enter with the a priori expected sign, but for some we obtain counterintuitive results. For the incentive variables we generally obtain estimates with the expected sign, even if the magnitude of the effects varies somewhat according to the estimation method applied and in some specifications the effects are barely significant. The more restrictive policies that were introduced in the 1970s did reduce immigration to Norway. In a counterfactual exercise we estimate that the two interventions taken together reduced immigration by more than 25 percent in a number of years. A liberalisation that took place in 1981 reduced the effects of the policies of the 1970s. A further liberalisation of policies in 1991 increased immigration further and more or less reversed the effects of the more restrictive policies of the 1970s. The liberalisation that implicitly was implemented with Norway joining the European Economic Area in 1994 is not found to be important in isolation. But Norwegian membership of the Schengen-area increased European immigration. When the EU was enlarged in both 2004 and 2007 these events led to significantly higher immigration. The effects of restrictive policies from the 1970s were more than compensated for by higher immigration from Europe so that all policy changes taken together meant that immigration to Norway became higher than it would have been if the policy of the early 1970s had still been in place.

Even if many of the country-specific fixed effects and trend effects are insignificant, the presence of these variables is important. When the country-specific trend effects are omitted a substantial drop in fit and less sensible estimates of the effects of the incentive variables are obtained. However, more parsimonious specifications of unobserved country-specific heterogeneity are a relevant topic for future research.

To get some benefits from the use of panel data, one has, at least to some extent, to impose some homogeneity assumptions, i.e., that some of the variables influence the countries or subsets of the countries in an identical way. However, it is always possible to question the validity of such a priori assumptions. As a matter of robustness we have therefore also reported estimates using only data for single continents. For the datasets, corresponding to the continents Africa, America and Asia, it is generally harder to obtain significant estimates of the parameters attached to the intervention dummies, and the wrong signs obtained when using the entire data set did not disappear. So there is a loss in information when considering specific regions compared to the sample as a whole. But largely, our various robustness checks seem to support our general findings with regard to the qualitative effects of immigration policies.

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Appendix A: Additional estimation results

Table A.1. Empirical analysis of immigration to Norway from the entire world. Restricted specification and aggregation of East-European countries[1]

Variable	No aggregation		Aggregation	
	Estimate	t-value	Estimate	t-value
$log(M/P)_{t-1}$	0.591	48.263	0.634	52.245
$log(IS/PNOR)_{t-1}$	0.047	3.369	0.029	2.071
$log(GDPCAP/GDPCAPNOR)_{t-2}$	–0.050	–1.537	–0.072	–2.085
$URNOR_{t-1}$	–0.061	–7.256	–0.049	–5.661
DUMCHILE	1.403	3.388	1.364	3.111
DUMLIBERIA	2.442	2.779	2.381	2.559
DUMSOMALIA	1.829	3.146	1.556	2.531
DNNORDIC×DDUM1974	–0.110	–3.875	–0.082	–2.800
DNNORDIC×DUM1977	–0.067	–2.401	–0.086	–3.036
DNNORDIC×DUM1981	0.085	3.262	0.045	1.685
DOECD×DNNORDIC×DUM1981	–0.076	–1.938	–0.035	–0.867
DPOL×DDUM1988	–0.384	–2.614	–0.379	–2.364
DNNORDIC×DUM1991	–0.150	–5.230	–0.110	–3.764
DOECD×DNNORDIC×DUM1991	0.246	6.236	0.192	4.675
DREFUGEE×DUM1997	0.777	3.925	0.069	0.389
DNNORDIC×DUM1998	0.077	2.252	0.088	2.439
DOECD×DNNORDIC×DUM1998	–0.133	–3.624	–0.114	–2.932
DNNORDIC×DUM1999	–0.191	–4.954	–0.185	–4.524
DNNORDIC×DUM2000A	–0.075	–1.980	–0.081	–2.0210
DNNORDIC×DSCHENGEN×DUM2001	0.197	2.757	0.188	2.494
(1-DSCHENGEN)×DUM2001	0.139	4.645	0.125	3.921
DEXTEU×DDUM2004	0.541	2.994	0.490	2.366
DVIETNAM×DUM2005	0.141	1.202	0.099	0.794
DBULROM×DUM2007EU	0.486	2.067	0.502	2.013
DLIB×DUM2007B	0.071	2.414	0.089	2.843
DSTRICT×DUM2008	–0.192	–6.231	–0.194	–5.918
Number of observations		4,193		4,016
R^2		0.946		0.946

[1] Left hand side variable $log(M/P)_t$. For the definition of the variables in the text column see Table B.1. Note that some of the variables in the text column are redefined when one considers estimation using aggregated data for U.S.S.R., Czechoslovakia and Yugoslavia. For instance the dummy variable *DREFUGEE* now becomes a country dummy for Yugoslavia.

Table A.2. Empirical analysis of immigration to Norway from the entire world. Restricted specification. Weighted regression and OLS[1]

Variable	Weighted regression		OLS	
	Estimate	t-value	Estimate	t-value
$log(M/P)_{t-1}$	0.591	48.263	0.512	40.067
$log(IS/PNOR)_{t-1}$	0.047	3.369	0.051	3.677
$log(GDPCAP/GDPCAPNOR)_{t-2}$	–0.050	–1.537	–0.029	–0.909
$URNOR_{t-1}$	–0.061	–7.256	–0.047	–4.663
DUMCHILE	1.403	3.388	1.604	5.607
DUMLIBERIA	2.442	2.779	2.504	8.139
DUMSOMALIA	1.829	3.146	1.909	6.571
DNNORDIC×DDUM1974	–0.110	–3.875	–0.068	–1.633
DNNORDIC×DUM1977	–0.067	–2.401	–0.037	–0.999
DNNORDIC×DUM1981	0.085	3.262	–0.014	–0.424
DOECD×DNNORDIC×DUM1981	–0.076	–1.938	–0.026	–0.528
DPOL×DDUM1988	–0.384	–2.614	–0.480	–3.379
DNNORDIC× DUM1991	–0.150	–5.230	–0.093	–2.671
DOECD×DNNORDIC×DUM1991	0.246	6.236	0.142	2.866
DREFUGEE×DUM1997	0.777	3.925	0.457	3.767
DNNORDIC×DDUM1998	0.077	2.252	0.008	0.178
DOECD×DNNORDIC×DUM1998	–0.133	–3.624	–0.021	–0.438
DNNORDIC×DUM1999	–0.191	–4.954	–0.056	–1.092
DNNORDIC×DUM2000A	–0.075	–1.980	–0.115	–2.248
DNNORDIC×DSCHENGEN×DUM2001	0.197	2.757	0.119	1.644
(1-DSCHENGEN)×DUM2001	0.139	4.645	0.050	1.230
DEXTEU×DDUM2004	0.541	2.994	0.523	6.582
DVIETNAM×DUM2005	0.141	1.202	0.037	0.210
DBULROM×DUM2007EU	0.486	2.067	0.529	2.981
DLIB×DUM2007B	0.071	2.414	–0.014	–0.331
DSTRICT×DUM2008	–0.192	–6.231	–0.105	–2.382
Number of observations		4,193		4,193
R^2		0.946		0.945

[1] Left hand side variable $log(M/P)_t$. For the definition of the variables in the text column see Table B.1.

Table A.3. Empirical analysis of immigration to Norway from the entire world. Restricted specification and aggregation of East-European countries. Weighted regression and OLS[1]

Variable	Weighted regression		OLS	
	Estimate	t-value	Estimate	t-value
$log(M/P)_{t-1}$	0.634	52.245	0.542	41.821
$log(IS/PNOR)_{t-1}$	0.029	2.071	0.052	3.607
$log(GDPCAP/GDPCAPNOR)_{t-2}$	–0.072	–2.085	–0.043	–1.294
$URNOR_{t-1}$	–0.049	–5.661	–0.045	–4.465
DUMCHILE	1.364	3.111	1.560	5.488
DUMLIBERIA	2.381	2.559	2.491	8.145
DUMSOMALIA	1.556	2.531	1.759	6.082
DNNORDIC×DDUM1974	–0.082	–2.800	–0.061	–1.495
DNNORDIC×DUM1977	–0.086	–3.036	–0.057	–1.575
DNNORDIC×DUM1981	0.045	1.685	–0.020	–0.622
DOECD×DNNORDIC×DUM1981	–0.035	–0.867	–0.021	–0.445
DPOL×DDUM1988	–0.379	–2.364	–0.553	–3.811
DNNORDIC×DUM1991	–0.110	–3.764	–0.070	–2.006
DOECD×DNNORDIC×DUM1991	0.192	4.675	0.124	2.550
DREFUGEE×DUM1997	0.069	0.389	0.271	1.860
DNNORDIC×DUM1998	0.088	2.439	0.021	0.457
DOECD×DNNORDIC×DUM1998	–0.114	–2.932	–0.003	–0.069
DNNORDIC×DUM1999	–0.185	–4.524	–0.086	–1.598
DNNORDIC×DUM2000A	–0.081	–2.021	–0.117	–2.187
DNNORDIC×DSCHENGEN×DUM2001	0.188	2.494	0.117	1.607
(1-DSCHENGEN)×DUM2001	0.125	3.921	0.044	1.026
DEXTEU×DDUM2004	0.490	2.366	0.330	0.235
DVIETNAM×DUM2005	0.099	0.794	0.041	0.235
DBULROM×DUM2007EU	0.502	2.013	0.551	3.112
DLIB×DUM2007B	0.089	2.843	0.003	0.059
DSTRICT×DUM2008	–0.194	–5.918	–0.130	–2.803
Number of observations		4,016		4,016
R^2		0.946		0.948

[1] Left hand side variable $log(M/P)_t$. For the definition of the variables in the text column see Table A1. Note that some of the variables in the text column are redefined when one considers estimation using aggregated data for U.S.S.R., Czechoslovakia and Yugoslavia. For instance the dummy variable *DREFUGEE* now becomes a country dummy for Yugoslavia.

Table A.4. Empirical analysis of immigration to Norway from the entire world. Countries with fewer than 15 observations omitted[1]

Variable	Full sample		Countries with more than 14 observations	
	Estimate	t-value	Estimate	t-value
$log(M/P)_{t-1}$	0.591	48.263	0.598	47.719
$log(IS/PNOR)_{t-1}$	0.047	3.369	0.044	3.099
$log(GDPCAP/GDPCAPNOR)_{t-2}$	–0.050	–1.537	–0.052	–1.556
$URNOR_{t-1}$	–0.061	–7.256	–0.061	–7.129
DUMCHILE	1.403	3.388	1.392	3.311
DUMLIBERIA	2.442	2.779	2.432	2.727
DUMSOMALIA	1.829	3.146	1.810	3.067
DNNORDIC×DDUM1974	–0.110	–3.875	–0.111	–3.833
DNNORDIC×DUM1977	–0.067	–2.401	–0.064	–2.275
DNNORDIC×DUM1981	0.085	3.262	0.085	3.198
DOECD×DNNORDIC×DUM1981	–0.076	–1.938	–0.075	–1.879
DPOL×DDUM1988	–0.384	–2.614	–0.381	–2.554
DNNORDIC×DUM1991	–0.150	–5.230	–0.146	–4.993
DOECD×DNNORDIC×DUM1991	0.246	6.236	0.244	6.086
DREFUGEE×DUM1997	0.777	3.925	0.772	3.839
DNNORDIC×DUM1998	0.077	2.252	0.078	2.240
DOECD×DNNORDIC×DUM1998	–0.133	–3.624	–0.134	–3.583
DNNORDIC×DUM1999	–0.191	–4.954	–0.191	–4.842
DNNORDIC×DUM2000A	–0.075	–1.980	–0.075	–1.951
DNNORDIC×DSCHENGEN×DUM2001	0.197	2.757	0.196	2.706
(1-DSCHENGEN)×DUM2001	0.139	4.645	0.138	4.527
DEXTEU×DDUM2004	0.541	2.994	0.535	2.911
DVIETNAM×DUM2005	0.141	1.202	0.142	1.191
DBULROM×DUM2007EU	0.486	2.067	0.486	2.033
DLIB×DUM2007B	0.071	2.414	0.072	2.372
DSTRICT×DUM2008	–0.192	–6.231	–0.192	–6.083
Number of observations		4,193		3,940
R^2		0.946		0.949

[1] Left hand side variable $log(M/P)_t$. For the definition of the variables in the text column see Table B.1. Note that some of the variables in the text column are redefined when one omits countries with less than 15 observations. For instance since Slovenia is omitted DEXTEU is one for Czech republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland and Slovakia.

Table A.5. Empirical model of immigration to Norway from Africa. Models without and with Gini-ratio-variables[1]

Variable	Without Gini-ratio variables		With Gini-ratio variables	
	Estimate	t-value	Estimate	t-value
$log(M/P)_{t-1}$	0.463	17.621	0.394	10.550
$log(IS/PNOR)_{t-1}$	0.061	2.308	0.002	0.048
$log(GDPCAP/GDPCAPNOR)_{t-2}$	0.072	1.314	0.195	2.218
$URNOR_{t-1}$	–0.063	–2.959	–0.047	–1.705
GINIRATIO			0.076	0.117
GINIRATIO SQUARED			0.015	0.089
DUMLIBERIA	2.466	3.282		
DUMSOMALIA	1.926	4.188		
DNNORDIC×DDUM1974	–0.090	–1.066	–0.069	–0.680
DNNORDIC×DUM1977	–0.071	–0.928	–0.006	–0.069
DNNORDIC×DUM1981	–0.023	–0.381	–0.096	–1.244
DNNORDIC×DUM1991	–0.060	–0.921	–0.025	–0.299
DREFUGEE×DUM1997	0.178	0.654		
DNNORDIC×DUM1998	0.088	1.085	0.190	1.852
DNNORDIC×DUM1999	–0.002	–0.089	–0.050	–0.423
DNNORDIC×DUM2000A	–0.247	–2.707	–0.262	–2.249
(1-DSCHENGEN)×DUM2001	0.226	3.162	0.245	2.692
DLIB×DUM2007B	–0.003	–0.044	–0.014	–0.169
DSTRICT×DUM2008	–0.112	–1.636	–0.066	–0.701
Number of observations		1,114		593
R^2		0.872		0.840

[1] Left hand side variable $log(M/P)_t$. For the definition of the variables in the text column see Table B.1. Note that some of the variables in the text column are redefined when one considers estimation using data only from Africa and only from those countries in Africa for which one has access to time series of Gini coefficients. For example *DLIB* now degenerates to a variable which takes the value 1 for all observation units.

Table A.6. Empirical model of immigration to Norway from Asia. Models without and with Gini-ratio-variable[1]

Variable	Without Gini-ratio variables		With Gini-ratio variables	
	Estimate	t-value	Estimate	t-value
$log(M/P)_{t-1}$	0.627	25.459	0.587	18.085
$log(IS/PNOR)_{t-1}$	0.040	1.296	0.042	1.089
$log(GDPCAP/GDPCAPNOR)_{t-2}$	–0.068	–0.770	–0.118	–1.012
$URNOR_{t-1}$	–0.074	–4.175	–0.067	–3.073
GINIRATIO			1.145	2.157
GINIRATIO SQUARED			–0.230	–1.421
DNNORDIC× DDUM1974	–0.140	–2.367	–0.100	–1.383
DNNORDIC× DUM1977	–0.057	–0.989	–0.066	–0.939
DNNORDIC ×DUM1981	0.123	2.502	0.116	1.922
DOECD×DNNORDIC×DUM1981	–0.008	–0.058	–0.009	–0.054
DNNORDIC×DUM1991	–0.124	–2.149	0.124	–1.715
DOECD×DNNORDIC×DUM1991	0.299	2.016	0.316	1.777
DREFUGEE×DUM1997	1.026	2.510		
DNNORDIC×DUM1998	0.085	1.232	0.104	1.232
DOECD×DNNORDIC× DUM1998	–0.172	–1.235	–0.148	–0.874
DNNORDIC×DUM1999	–0.265	–3.343	–0.269	–2.783
DNNORDIC×DUM2000A	–0.077	–0.990	–0.042	–0.444
(1-DSCHENGEN) ×DUM2001	0.178	2.887	0.180	2.360
DEXTEU×DDUM2004	0.078	0.048	0.016	0.008
DVIETNAM×DUM2005	0.157	0.843	0.174	0.690
DLIB×DUM2007B	0.094	1.596	0.081	1.124
DSTRICT×DUM2008	–0.228	–3.722	–0.257	–3.193
Number of observations		1,034		649
R^2		0.937		0.951

[1] Left hand side variable $log(M/P)_t$. For the definition of the variables in the text column see Table B.1. Note that some of the variables in the text column are redefined when one considers estimation using data only from Asia and only from those countries in Asia for which one has access to time series of Gini coefficients. For example *DLIB* now degenerates to a variable which takes the value 1 for all the observation units considered.

Table A.7. Empirical model of immigration to Norway from America. Models without and with Gini-ratio-variable[1]

Variable	Without Gini-ratio variables		With Gini-ratio variables	
	Estimate	t-value	Estimate	t-value
$log(M/P)_{t-1}$	0.423	12.533	0.410	11.387
$log(IS/PNOR)_{t-1}$	0.168	3.268	0.195	3.353
$log(GDPCAP/GDPCAPNOR)_{t-2}$	–0.046	–0.413	–0.011	–0.092
$URNOR_{t-1}$	–0.039	–2.184	–0.037	–1.969
GINIRATIO			0.279	0.583
GINIRATIO SQUARED			–0.088	–0.716
DUMCHILE	1.755	5.261	1.804	5.221
DNNORDIC×DDUM1974	–0.188	–3.335	–0.201	–3.436
DNNORDIC×DUM1977	–0.007	–0.131	–0.008	–0.149
DNNORDIC×DUM1981	–0.050	–0.774	–0.066	–0.942
DOECD×DNNORDIC×DUM1981	–0.078	–1.089	–0.064	–0.815
DNNORDIC×DUM1991	–0.148	–2.206	–0.197	–2.669
DOECD×DNNORDIC×DUM1991	0.169	2.289	0.215	2.659
DNNORDIC×DUM1998	0.002	0.030	–0.018	–0.208
DOECD×DNNORDIC×DUM1998	–0.026	–0.387	0.009	0.117
DNNORDIC×DUM1999	–0.221	–2.731	–0.224	–2.657
DNNORDIC×DUM2000A	0.159	1.999	0.146	1.742
(1-DSCHENGEN)×DUM2001	–0.085	–1.346	–0.078	–1.177
DLIB×DUM2007B	0.094	1.558	0.096	1.511
DSTRICT×DUM2008	–0.170	–2.691	–0.137	–1.958
Number of observations		706		639
R^2		0.874		0.868

[1] Left hand side variable $log(M/P)_t$. For the definition of the variables in the text column see Table B.1. Note that some of the variables in the text column are redefined when one considers estimation using data only from America and only from those countries in America for which one has access to time series of Gini coefficients. For example *DLIB* now degenerates to a variable which takes the value 1 for all the observation units considered.

Table A.8. Empirical model of immigration to Norway from Europe. Models without and with Gini-ratio-variable[1]

Variable	Without Gini-ratio variables		With Gini-ratio-variables	
	Estimate	t-value	Estimate	t-value
$log(M/P)_{t-1}$	0.621	26.068	0.643	25.709
$log(IS/PNOR)_{t-1}$	0.031	1.219	0.042	1.564
$log(GDPCAP/GDPCAPNOR)_{t-2}$	–0.110	–1.474	–0.143	–1.807
$URNOR_{t-1}$	–0.038	–3.290	–0.035	–3.045
GINIRATIO			0.216	0.595
GINIRATIO SQUARED			–0.083	–0.649
DNNORDIC×DDUM1974	0.032	0.784	0.035	0.870
DNNORDIC×DUM1977	–0.118	–2.950	–0.117	–3.064
DNNORDIC×DUM1981	0.169	1.664	0.168	1.708
DOECD×DNNORDIC×DUM1981	–0.142	–1.353	–0.145	–1.413
DPOL×DDUM1988	–0.369	–4.760	–0.392	–5.103
DNNORDIC ×DUM1991	–0.137	–1.413	–0.141	–1.490
DOECD×DNNORDIC×DUM1991	0.226	2.260	0.234	2.393
DREFUGEE×DUM1997	0.261	1.377	0.390	1.215
DNNORDIC×DUM1998	0.102	1.584	0.055	0.855
DOECD×DNNORDIC×DUM1998	–0.151	–2.286	–0.083	–1.267
DNNORDIC×DUM1999	–0.039	–0.720	–0.081	–1.548
DNNORDIC×DUM2000A	–0.131	–2.448	–0.082	–1.568
DNNORDIC ×DSCHENGEN×DUM2001	0.189	3.680	0.156	3.146
(1-DSCHENGEN)×DUM2001	0.163	3.501	0.143	3.163
DEXTEU×DDUM2004	0.523	5.313	0.523	5.313
DBULROM×DUM2007EU	0.553	4.084	0.475	4.799
DLIB×DUM2007B	0.007	0.111	–0.013	–0.206
DSTRICT×DUM2008	–0.183	–2.768	–0.159	–2.301
Number of observations		1,136		1,031
R^2		0.968		0.972

[1] Left hand side variable $log(M/P)_t$. For the definition of the variables in the text column see Table B.1. Note that some of the variables in the text column are redefined when one considers estimation using data only from Europe and only from those countries in Europe for which one has access to time series for Gini coefficients. For example *DREFUGEE* now degenerates to a variable which takes the value 1 for Croatia, Macedonia and Slovakia since one does not have access to time series of Gini coefficients for Bosnia Herzegovina and Montenegro and Serbia.

Appendix B: Details on data

Table B.1. An overview of intervention dummies, the countries that are influenced by the various policy dummies and the expected sign of the effects of the dummy variables[1]

Intervention dummies	Country/Country area dummies	Definition of country/country area dummies	Description of intervention	Expected sign
DDUM1974	*DNNORDIC*	DNNORDIC is 1 for all countries except Denmark, Finland, Iceland and Sweden.	Ban on general work permits introduced in February 1974. All countries.	Negative
DUM1977	*DNNORDIC*		Residence permits not granted to illegally entrants.	Negative
DUM1981	*DNNORDIC*		Residence permits for immigrant students and school attendants. They were also given work permits. More liberal rules for family reunions.	Positive
DDUM1988	*DPOL*	DPOL is 1 for Polen	Polish workers on tourist visas given work permits.	Positive
DUM1991	*DNNORDIC*		Easier family reunion, work permits given to applicants for residence.	Positive
DUM1993	*DBOSHER*	DBOSHER is 1 for Bosnia Herzegovina	Easier access for people from Bosnia Herzegovina.	Positive
DUM1994	*DEEA*	DEEA is one for Austria, Belgium, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain and United Kingdom	Norway joins the EEA. EEA-citizens free access.	Positive
DUM1997	*DREFUGEE*	DREFUGEE is one for Afghanistan, Iraq, Somalia and for countries in former Yugoslavia.	Liberalisation related to the Geneva-convention. Refugees.	Positive
DUM1998	*DNNORDIC*		Liberalisation for refugees.	Positive
DUM1999	*DNNORDIC*		New law on human rights. UN convention on women and children.	Positive
DUM2000A	*DNNORDIC*		Easier access for people with specialist competence.	Positive
DUM2000B	*DIRAQ*	DIRAQ is 1 for Iraq	Easier access for people from Iraq.	Positive
DUM2001	*DEEA*		Schengen-convention. Liberalisation for Schengen member countries.	Positive
DUM2001	*(1-DEEA)* DNNORDIC*		Schengen-convention. Possible tigthening for countries outside the Schenger-area.	Negative
DDUM2003	*DREFUGEE*	DREFUGEE is one for Afghanistan, Iraq, Somalia and for countries in former Yugoslavia.	Liberalisation in 1997 tightened in 2003.	Negative
DDUM2004	*DEXTEU*	DEXTEU is one for Czech republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia.	Extension of EU	Positive
DUM2005	*DVIETNAM*	DVIETNAM is one for Irag and Philippines	Easier access for Vietnamese refugees to the Philippines and Iraq.	Positive
DUM2006	*DVISA*	DVISA=(1-DEEA)*(1-DEXTEU)* DNNORDIC	More restrictive rules for family reunion for immigrants arriving on tourist visa from non-EU countries.	Negative
DUM2007EU	*DBULROM*	DBULROM is one for Bulgaria and Romania	New EU members	Positive
DUM2007A	*DEXTEU*	See DDUM2004	New EU members in 2004 included in Schengen area	Positive
DUM2007B	*DLIB*	DLIB=(1-DEEA)*(1-DEXTEU)* (1-DBULROM)*DNNORDIC	Residence given for asylum seekers not able to return	Positive
DUM2008	*DSTRICT*	DSTRICT=(1-DEEA)*(1-DEXTEU)* (1-DSWI)*DNNORDIC, where DSWI is one for Switzerland and 0 otherwise	Stricter economic demands for family reunion.	Negative
DUM2009A	*DTRANS*	DTRANS is one for Czech republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia.	Temporary transition rules applying to new (from 2004) EU members lifted (except Cyprus and Malta)	Positive
DUM2009B	*DSWI*		Switzerland joins the Schengen-area	Positive

[1] *DUMj* (j=1977, 1981, 1991, 1993, 1994, 1997, 1998, 1999, 2001, 2005, 2006, 2008) is a dummy variable that is 0 before year j and 1 from year j on. *DDUM1974* is a dummy variable that is 0 before 1974, equal to 0.917 (≈11/12) in 1974 and 1 from 1975 on. *DDUM1988* is a dummy variable that is 0 before 1988, 1 in the years 1988–2003 and 0 zero in the years thereafter. *DUM2000A* and *DUM2000B* are 0 zero before 2000 and 1 thereafter. *DDUM2003* is zero before 2003, 0.5 in 2003 and 1 in the years thereafter. *DDUM2004* is zero before 2004, 0.67 (≈2/3) in 2004 and 1 in the years thereafter. *DUM2007EU*, *DUM2007A* and *DUM2007B* are 0 zero before 2007 and 1 thereafter. *DUM2009A* and *DUM2009B* are 0 zero before 2009 and 1 thereafter.

Table B.2. The number of observations by countries in different cases

Country	Current number	Reference model	Aggregation of countries in East-Europe	Are timeseries for Gini-index available?
Afghanistan	1	23	23	No
Albania	2	19	19	Yes
Algeria	3	39	39	Yes
Angola	4	24	24	No
Argentina	5	42	42	Yes
Armenia	6	11		Yes
Australia	7	42	42	Yes
Austria	8	42	42	Yes
Azerbaijan	9	13		Yes
Bahrain	11	10	10	No
Bangladesh	12	35	35	Yes
Belarus	14	17		Yes
Belgium	15	42	42	Yes
Benin	17	5	5	No
Bhutan	18	14	14	No
Bolivia	19	37	37	Yes
Bosnia Herzegovina	20	18		No
Botswana	21	33	33	Yes
Brazil	22	42	42	Yes
Brunei	23	9	9	No
Bulgaria	24	35	35	Yes
Cambodia	27	12	12	Yes
Cameroon	28	35	35	Yes
Canada	29	42	42	Yes
Cape Verde	30	14	14	No
Chile	33	39	39	Yes
China	34	42	42	Yes
Colombia	35	39	39	Yes
Congo	37	39	39	No
Congo Brazzaville	38	33	33	No
Costa Rica	39	33	33	Yes
Cote Divoire	40	35	35	Yes
Croatia	41	18		Yes
Cuba	42	17	17	No
Cyprus	43	26	26	Yes
Czech Republic	44	17		Yes
Denmark	45	42	42	Yes
Dominican Republic	47	32	32	Yes
Ecuador	48	35	35	Yes
Egypt	49	42	42	Yes
El Salvador	50	10	10	Yes
Estonia	53	19		Yes
Ethiopia	54	42	42	No
Finland	56	42	42	Yes
France	57	42	42	Yes
Gambia	59	35	35	No
Germany	61	39	39	Yes
Ghana	62	39	39	No
Greece	63	42	42	Yes
Guatemala	65	31	31	Yes
Guinea	66	10	10	Yes
Guyana	68	2	2	No
Honduras	70	11	11	Yes
Hong Kong	71	42	42	Yes
Hungary	72	39	39	Yes
Iceland	73	42	42	No
India	74	42	42	Yes
Indonesia	75	42	42	Yes
Iran	76	42	42	Yes
Iraq	77	24	24	No
Ireland	78	42	42	Yes
Israel	79	42	42	Yes
Italy	80	42	42	Yes
Jamaica	81	28	28	Yes
Japan	82	42	42	Yes
Jordan	83	26	26	Yes
Kazakhstan	84	13		Yes
Kenya	85	42	42	Yes
Kuwait	86	26	26	No
Kyrgyzstan	87	7		Yes
Laos	88	12	12	No
Latvia	89	19		Yes
Lebanon	90	39	39	No
Liberia	92	26	26	No
Libya	93	35	35	No

Table B.2. Continued

Country	Current number	Reference model	Aggregation of countries in East-Europe	Are timeseries for Gini-index available?
Lithuania	94	19		Yes
Luxembourg	95	35	15	Yes
Macao	96	10	10	No
Macedonia	97	16		Yes
Madagascar	98	35	35	Yes
Malawi	99	11	11	Yes
Malaysia	100	35	35	Yes
Mali	102	24	24	Yes
Malta	103	19	19	No
Mauritius	105	14	14	Yes
Mexico	106	42	42	Yes
Moldova	108	11		Yes
Mongolia	109	13	13	No
Morocco	111	39	39	Yes
Mozambique	112	28	28	No
Namibia	113	18	18	No
Nepal	114	34	34	No
Netherlands	115	42	42	Yes
New Zealand	116	42	42	Yes
Nicaragua	117	24	24	Yes
Nigeria	119	40	40	Yes
Oman	121	26	26	No
Pakistan	122	39	39	Yes
Paraguay	125	29	29	Yes
Peru	126	39	39	Yes
Philippines	127	42	42	Yes
Poland	128	39	39	Yes
Portugal	129	42	42	Yes
Qatar	131	35	35	No
Romania	132	33	33	Yes
Russia	133	18		Yes
Rwanda	134	19	19	No
Saudi Arabia	137	34	34	No
Senegal	138	18	18	Yes
Sierra Leone	140	30	30	No
Singapore	141	35	35	Yes
Slovakia	142	17		Yes
Slovenia	143	7		Yes
Somalia	145	27	27	No
South Africa	146	42	42	Yes
South Korea	147	39	39	Yes
Spain	148	42	42	Yes
Sri Lanka	149	35	35	Yes
Sudan	152	36	36	No
Swaziland	154	6	6	No
Sweden	155	42	42	Yes
Switzerland	156	42	42	Yes
Syria	157	29	29	No
Tajikistan	158	6		Yes
Tanzania	159	42	42	Yes
Thailand	160	39	39	Yes
Togo	162	16	16	No
Trinidad and Tobago	164	30	30	No
Tunisia	165	39	39	Yes
Turkey	166	42	42	Yes
Uganda	168	33	33	Yes
Ukraine	169	18		Yes
United Arab Emirates	170	25	25	No
United Kingdom	171	42	42	Yes
United States	172	42	42	Yes
Uruguay	173	20	20	Yes
Uzbekistan	174	10		Yes
Venezuela	176	40	40	Yes
Vietnam	177	34	34	Yes
Yemen	178	12	12	Yes
Zambia	179	38	38	Yes
Zimbabwe	180	31	31	No
U.S.S.R.	181		38	Yes
Yugoslavia	182		39	Yes
Czechoslovakia	183		39	No
Serbia and Montenegro	185	19		No
Total		4,193	4,016	

Table B.3. Countries included in the region specific estimation for Africa

Country	Current number	Number of observations
Algeria	3	39
Angola	4	24
Benin	17	5
Botswana	21	33
Cameroon	28	35
Cape Verde	30	14
Congo	37	39
Congo Brazzaville	38	33
Cote Divoire	40	35
Egypt	49	42
Ethiopia	54	42
Gambia	59	35
Ghana	62	39
Guinea	66	10
Kenya	85	42
Liberia	92	26
Libya	93	35
Madagascar	98	35
Malawi	99	11
Mali	102	24
Mauritius	105	14
Morocco	111	39
Mozambique	112	28
Namibia	113	18
Nigeria	119	40
Rwanda	134	19
Senegal	138	18
Sierra Leone	140	30
Somalia	145	27
South Africa	146	42
Sudan	152	36
Swaziland	154	6
Tanzania	159	42
Togo	162	16
Tunisia	165	39
Uganda	168	33
Zambia	179	38
Zimbabwe	180	31
Total		1,114

Table B.4. The countries occurring in the region specific estimation for Asia

Country	Current number	Number of observations
Afghanistan	1	23
Azerbaijan	9	13
Bahrain	11	10
Bangladesh	12	35
Bhutan	18	14
Brunei	23	9
Cambodia	27	12
China	34	42
Cyprus	43	26
Hong Kong	71	42
India	74	42
Indonesia	75	42
Iran	76	42
Iraq	77	24
Japan	82	42
Jordan	83	26
Kazakhstan	84	13
Kuwait	86	26
Kyrgyzstan	87	7
Laos	88	12
Lebanon	90	39
Macao	96	10
Malaysia	100	35
Mongolia	109	13
Nepal	114	34
Oman	121	26
Pakistan	122	39
Philippines	127	42
Qatar	131	35
Saudi Arabia	137	34
Singapore	141	35
Sri Lanka	149	35
Syria	157	29
Tajikistan	158	6
Thailand	160	39
United Arab Emirates	170	25
Uzbekistan	174	10
Vietnam	177	34
Yemen	178	12
Total		1,034

Table B.5. The countries included in the region specific estimation for America

Country	Current number	Number of observations
Argentina	5	42
Bolivia	19	37
Brazil	22	42
Canada	29	42
Chile	33	39
Colombia	35	39
Costa Rica	39	33
Cuba	42	17
Dominican Republic	47	32
Ecuador	48	35
El Salvador	50	10
Guatemala	65	31
Guyana	68	2
Honduras	70	11
Jamaica	81	28
Mexico	106	42
Nicaragua	117	24
Paraguay	125	29
Peru	126	39
Trinidad and Tobago	164	30
United States	172	42
Uruguay	173	20
Venezuela	176	40
Total		706

Table B.6. The countries involved in the region specific estimation for Europe

Country	Current number	Number of observations
Albania	2	19
Austria	8	42
Belarus	14	17
Belgium	15	42
Bosnia Herzegovina	20	18
Bulgaria	24	35
Croatia	41	18
Czech Republic	44	17
Denmark	45	42
Estonia	53	19
Finland	56	42
France	57	42
Germany	61	39
Greece	63	42
Hungary	72	39
Iceland	73	42
Ireland	78	42
Italy	80	42
Latvia	89	19
Lithuania	94	19
Luxembourg	95	35
Macedonia	97	16
Malta	103	19
Moldova	108	11
Netherlands	115	42
Poland	128	39
Portugal	129	42
Romania	132	33
Russia	133	18
Slovakia	142	17
Slovenia	143	7
Spain	148	42
Sweden	155	42
Switzerland	156	42
Turkey	166	42
Ukraine	169	18
United Kingdom	171	42
Serbia and Montenegro	185	19
Total		1,163

Table B.7. Countries for which DOECD=1 in the empirical analysis

Country	Current number
Australia	7
Austria	8
Belgium	15
Canada	29
Czech Republic	44
Denmark	45
Estonia	53
Finland	56
France	57
Germany	61
Greece	63
Hungary	72
Iceland	73
Ireland	78
Israel	79
Italy	80
Japan	82
Luxembourg	95
Mexico	106
Netherlands	115
New Zealand	116
Poland	128
Portugal	129
Slovakia	142
South Korea	147
Spain	148
Sri Lanka	149
Sweden	155
Turkey	166
United Kingdom	171
United States	172

Table B.8. Countries included in estimations involving the origin unemployment rate[1]

Country	Current number
Australia	7
Austria	8
Belgium	15
Canada	29
Czech Republic	44
Denmark	45
Estonia	53
Finland	56
France	57
Germany	61
Greece	63
Hungary	72
Iceland[a]	73
Ireland	78
Israel	79
Italy	80
Japan	82
Luxembourg	95
Mexico	106
Netherlands	115
New Zealand	116
Poland	128
Portugal	129
Slovakia	142
South Korea	147
Spain	148
Sweden	155
Switzerland	156
Turkey	166
United Kingdom	171
United States	172

[1]In the estimation where both the Gini ratio variable and the origin unemployment rate are used as regressors Iceland is omitted since one does not have access to a time series of Gini coefficents for this country.

Table B.9. Countries included in the counterfactual analysis

Country	Current number	Country	Current number
Algeria	3	Japan	82
Argentina	5	Jordan	83
Australia	7	Kenya	85
Austria	8	Lebanon	90
Belgium	15	Libya	93
Bolivia	19	Mexico	106
Brazil	22	Morocco	111
Bulgaria	24	Netherlands	115
Canada	29	Nigeria	119
Chile	33	Pakistan	122
China	34	Paraguay	125
Colombia	35	Peru	126
Congo	37	Philippines	127
Denmark	45	Poland	128
Egypt	49	Portugal	129
Ethiopia	54	South Africa	146
Finland	55	South Korea	147
France	56	Spain	148
Germany	61	Sudan	152
Ghana	62	Sweden	155
Greece	63	Switzerland	156
Hong Kong	71	Tanzania	159
Hungary	72	Thailand	160
Iceland	73	Tunisia	165
India	74	Turkey	166
Indonesia	75	Uganda	168
Iran	76	Ukraine	169
Ireland	78	United Kingdom	171
Israel	79	United States	172
Italy	80	Venezuela	176
Jamaica	81	Zambia	179

Table B.10. The reference path of GDP-levels per capita for Norway and Sweden and the GDP-level per capita for Norway under the counterfactual path where Norway is assumed to have the same GDP-level per capita as Sweden from 1978 and onwards

Year	Reference path		Counterfactual path
	Sweden	Norway	Norway
1972	5,447.5	4,937.5	4,937.5
1974	5,965.8	5,499.5	5,499.5
1974	6,612.6	6,198.0	6,198.0
1975	7,507.3	6,871.9	6,871.9
1976	8,008.3	7,536.3	7,536.3
1977	8,287.8	8,238.8	8,238.8
1978	8,943.7	9,099.9	9,099.9
1979	10,024.8	10,468.4	10,024.8
1980	11,127.2	12,432.9	11,127.2
1981	12,120.5	13,932.3	12,120.5
1982	12,807.6	14,587.0	12,807.6
1983	13,491.0	15,401.5	13,491.0
1984	14,699.2	16,917.4	14,699.2
1985	15,406.7	18,002.1	15,406.7
1986	16,398.2	17,755.3	16,398.2
1987	17,339.5	18,258.8	17,339.5
1988	18,337.0	18,483.9	18,337.0
1989	19,457.0	19,526.5	19,457.0
1990	20,129.6	20,732.5	20,129.6
1991	20,553.1	21,840.0	20,553.1
1992	20,624.4	22,397.8	20,624.4
1993	20,392.3	23,430.2	20,392.3
1994	21,497.6	24,617.0	21,497.6
1995	22,842.5	26,159.3	22,842.5
1996	23,359.5	28,350.5	23,359.5
1997	24,190.5	30,354.1	24,190.5
1998	25,144.4	30,017.4	25,144.4
1999	26,372.8	32,118.1	26,372.8
2000	27,944.8	37,575.5	27,944.8
2001	28,647.9	38,204.2	28,647.9
2002	29,502.3	37,926.6	29,502.3
2003	30,611.8	39,032.3	30,611.8
2004	32,554.7	43,133.8	32,554.7
2005	35,010.8	48,722.4	35,010.8
2006	37,657.6	54,176.3	37,657.6
2007	40,309.3	56,636.3	40,309.3
2008	41,398.4	62,126.5	41,398.4

Table B.11. An overview of the countries included in U.S.S.R., Yugoslavia and Czechoslovakia

Country	Current number
U.S.S.R.	181
Armenia	6
Azerbaijan	9
Belarus	14
Estonia	53
Georgia	60
Kazakhstan	84
Kyrgyzstan	87
Latvia	89
Lithuania	94
Moldova	108
Russia	133
Tajikistan	158
Turkmenistan	167
Ukraine	169
Uzbekistan	174
Yugoslavia[1]	
Bosnia Herzegovina	20
Croatia	41
Macedonia	97
Montenegro and Serbia	185
Slovenia	143
Czechoslovakia	
Czech Republic	44
Slovakia	142

[1] The Kosovo area is also a part of former Yugoslavia, but immigration from this area to Norway is not included after the dissolution of Yugoslavia.

Table B.12. Countries omitted from the econometric analyses and their total number of immigrants to Norway 1967–2010

Country	Current number	Total number of immigrants 1967–2010
Bahamas	10	76
Barbados	13	68
Belize	16	20
Burkina Faso	25	52
Burundi	26	821
Central African Republic	31	9
Chad	32	32
Comoros	36	6
Djibouti	46	88
Equatorial Guinea	51	30
Eritrea	52	5 536
Fiji	55	62
Gabon	58	124
Grenada	64	38
Guinea Bissau	67	41
Haiti	69	49
Lesotho	91	72
Maldives	101	58
Mauritania	104	33
Micronesia	107	9
Niger	118	86
Panama	123	131
Papua New Guinea	124	39
Puerto Rico	130	13
Samoa	135	20
Sao Tome and Principe	136	2
Salomon Islands	144	6
St. Lucia	150	13
St. Vincent and the Grenadines	151	12
Suriname	153	46
Timor Leste	161	33
Tonga	163	18
Turkmenistan	167	50
Vanuatu	175	3

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