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Immigration and Inequality in Europe

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GROWING INEQUALITIES' IMPACTS

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Abstract

This paper aims at assessing the effect of immigration on native income inequality in Western Europe. I use different regional indicators of income inequality, which allow distinguishing between dispersion at the top and at the bottom of the income distribution, and correlate them to regional annual inflows of immigrants over the period 2004-2008. Results indicate that immigration is associated with a decrease of income inequality at the bottom of the distribution. However, IV estimates do not show any causal effect of immigration on income dispersion.

Executive Summary

- This paper provides a first analysis of the link between immigration and income inequality for Western European countries (Austria, Belgium, Germany, Denmark, Spain, Finland, France, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Sweden, UK).
- I use annual data from the EU Statistics on Income and Living Conditions (EU_SILC) for years 2004-2008, and augment them with information on immigrants from the European Union Labour force Survey (EULFS).
- In my empirical analysis, I correlate annual changes in regional indices of individual income inequality with annual inflows of immigrants, which I define as individuals born outside of their country of current residence.
- I consider 5 indices of income inequality, which capture inequality at different parts of the income distribution: the $90^{th}/10^{th}$ percentile ratio, the 90th/50th percentile ratio, the 50th/10th percentile ratio, the 75th/25th percentile ratio, and the Gini index.
- The analysis shows that immigration is correlated with a decrease in individual income inequality, especially at the bottom of the distribution.
- My estimates imply that an increase in immigration of the size of 1% of the native population is associated with a decrease of about 0.85% in the ratio of the 50th to the 10th percentile of the individual income distribution. This finding is robust across a variety of definitions of income and of immigration data sources.
- Results for other indicators of inequality are less robust, and depend on the data sources and variable considered.
- These results cannot be given a causal interpretation. IV estimates, based on past settlement choices of immigrants, do not indicate any statistically significant causal effect of immigration on inequality. The lack of any significant IV results might however be due to a weak instruments problem.
- The paper highlights substantial limitations in data which complicate the analysis. The most important are: absence of comparable regional indicators and income variables for all countries and years, small sample size and non-representativeness of the sample of immigrants, especially at the local level, in most European datasets.

1. Introduction

Europe has experienced a substantial increase in its immigrant population over the last decades. While some countries in Central and Northern Europe have been the destination of immigration flows throughout the last half of the past century, due to their colonial ties or to their sustained labour demand, Southern European countries have only recently become net receivers of immigrants. Overall, the experience of Europe with immigration is more recent and limited than that of South and North America, or of Australia (see Dustmann and Frattini (2012) for an overview of the history of migration in Europe). The relative novelty of the phenomenon and the rapid growth in the foreign-born population in many countries over a relatively short period of time has also contributed to create concerns among policy-makers and residents of many countries about potentially negative effects of immigration on the welfare of residents. Immigration has thus become one of the most controversial and highly debated policy issues in Europe. However, while there are several country-specific studies on the consequences of immigration on the economy of receiving countries, there is a lack of European – wide studies (Angrist and Kugler (2003), and D'Amuri and Peri (2011) are two exceptions). In particular, we know little about the effect of immigration on inequality in Europe.

This paper aims at assessing the effect of immigration on inequality of native income across Western European countries[1]. I construct regional indicators of inequality for natives, based on the Gini index and on different ratios of percentiles (90/10. 90/50, 50/10 and 75/25) of the individual income distribution, which allow distinguishing between dispersion at the top and the bottom of the distribution. The analysis is based on data from the European Statistics on Income and Living Conditions (EU-SILC), which is currently the EU reference source for indicators of poverty and social inclusion (see Nolan, Marx and Salverda (2011) for a discussion of inequality measures and data sources in Europe). Following a long tradition in the literature on the impact of immigration on the labour market, I then identify the effect of immigration on inequality by correlating changes in immigrant concentration in a region with changes in the indicators of inequality in the same region, and I account for the endogeneity of immigrants location choices with an IV strategy based on lagged immigrant stocks.

The paper is structured as follows. In the next section I provide a brief review of the literature on the impact of immigration on receiving countries, with a focus on Europe; in section 3 I describe my empirical strategy and in section 4 I present the datasets used in the analysis and critically evaluate their limitations. Section 5 presents

1 I focus on Austria, Belgium, Germany, Denmark, Spain, Finland, France, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Sweden, and UK.

a descriptive analysis of the key characteristics of immigration in Europe. Results of the empirical analysis are presented in section 6, while section 7 discusses the results and provides some directions for future research.

2. Literature

The effect of immigration on natives' labour market outcomes, and in particular on native wages, has been the subject of a vast literature which dates back at least to Grossman (1982), Borjas (1987), Card (1990) and Altonji and Card (1991), who studied the effect of immigration on native wages in the US context. Over time, and with the availability of suitable microdata for an increasing number of European countries, many papers have also investigated the consequences of immigration on the labour market of individual European countries (see e.g. Winter-Ebmer and Zweimueller (1996 and 1999) for Austria; Hunt (1992) for France; Pischke and Velling (1997), D'Amuri, Ottaviano and Peri (2010) and Glitz (2011) for Germany; Carrington and de Lima (1996) for Portugal; Carrasco, Jimeno, Ortega (2008) for Spain; Dustmann, Fabbri and Preston (2005), Dustmann, Frattini and Preston (2012), Manacorda, Manning and Wadsworth (2012) for the UK). However, only a couple of papers (Angrist and Kugler (2003) and D'Amuri and Peri (2011)) have investigated the effect of immigration on European labour markets as a whole, and both of them have focussed on the effect on native employment, due to the lack of information on wages.

A comprehensive review of the literature is beyond the scope of the paper[2], but while there is still a – sometimes heated – debate among scholars on the best estimation strategies (see e.g. Card (2001), Borjas (2003), Borjas, Grogger and Hanson (2008) and Ottaviano and Peri (2012)), most of the recent studies indicate that immigration has only small effects on natives' labour market outcomes.

No papers have explicitly studied the effect of immigration on inequality, although many have shown the effect of immigration on different skill groups defined in terms of either occupation (e.g. Card (2001), Orrenius and Zavodny (2007)), education (e.g. Dustmann et al.(2005), Card and Lewis (2007)), or position in the wage distribution (Card (2009a), Dustmann et al. (2012)). In a recent paper, David Card (2009b) offers a wide overview of the existing evidence on the relationship between immigration and inequality, with a focus on the US case. His paper demonstrates that evidence from studies using different type of empirical approaches offers coherent evidence toward the fact that the impacts of recent immigrant inflows on the *relative* wages of U.S. natives in different skill groups are small. However the effects on overall wage inequality (including natives and immigrants) are larger, reflecting the concentration of immigrants in the tails of the skill distribution and higher residual inequality among immigrants than natives. Even so his results show that immigration accounts for a small share (5%) of the increase in U.S. wage inequality between 1980 and 2000. As regards Europe, Barrett, Fitzgerald and Nolan (2002) argue that immigration in Ireland, which was primarily composed of high skill immigrants, has contributed to a

2 Friedberg and Hunt (1995), Gaston and Nelson (2002) and Okkerse (2008) are three papers that survey this literature in great detail.

decrease in earnings inequality. Conversely, Dustmann et al. (2012) show that immigrants in the UK are employed in unskilled occupations, despite their high educational qualifications, and as a results immigration over the period 1997-2006 has contributed to a small widening of the 90/10 and 90/50 wage percentiles ratios, but had no effects on the 90/50 ratio. These results point to the key role of the type of skills, and especially to the type of occupation immigrants are employed in, as key determinants of the effect of immigration on wages and on inequality.

3. Empirical strategy

In this section I describe my empirical strategy and the challenges it poses.

As it is by now common in most of the literature on the impact of migration (see e.g. Card (1990), Altonji and Card (1991), Dustmann, Fabbri and Preston (2005), Dustmann, Frattini and Preston (2012)) I exploit spatial variation in immigration, and regress measures of native income inequality in a given area on the relative quantities of immigrants in that particular locality and appropriate controls. This approach is sometimes referred to as the *spatial correlation approach.* The implicit assumption in this empirical approach is that different spatial units can be considered as separate labour markets, and therefore immigration in a region affects local labour supply only, without having consequences on other regions.

I run regressions of the form:

$$\Delta ineq_{rt} = \beta \Delta m_{rt} + \Delta X'_{rt}\gamma + \theta_t + \Delta u_{rt} \quad (1)$$

where I use the index *r* to denote different spatial units, and the index *t* for different years. The dependent variable is a measure of income inequality (see below), and the regressor of interest is , the ratio of immigrants to natives in the region. The vector *X* includes controls for the size and characteristics of the native population in the region (logarithm of the number of native residents, average age of natives, and ratio of high skilled and intermediate skilled natives to low educated natives in the region). Time dummies control for all time specific but region-invariant shocks affecting all regions in year *t*.

The model is specified in first differences so that all time-invariant regional characteristics are differenced out. We are therefore not concerned by the fact that immigrants might settle in regions with permanently higher (or lower) income inequality, as regional fixed effects are implicitly accounted for by first differencing.

Even after differencing, however, it might still be the case that immigrants are attracted towards regions where inequality is increasing (or decreasing), and therefore OLS estimates might be biased due to reverse causality. The bias can be eliminated using an IV strategy. I follow what has by now become a tradition in this kind of literature, and rely on past immigration as a source of exogenous variation in immigrants' location choices. A large literature (see e.g. Bartel (1989), Munshi (2003)) has shown that immigrants' networks are one of the main determinants of immigrant location choices. Therefore, under the assumption that location choices of immigrants in the past are not correlated with current economic shocks, they provide a suitable instrument for current period immigrant inflows .

In practice, I construct the instrument in a similar fashion to Dustmann et al. (2012). I use the regional immigrant-native ratio in 2001, , (measured from the European Union Labour Force Survey, see section 4.2) as a measure of historical regional immigration, and obtain time-variation in the instrument through the interaction with year dummies, I present first stage statistics in section 6.2.

4. Data and sample construction

4.1. The EU Statistics on Income and Living Conditions (EU-SILC)

The main dataset used in this analysis is the European Union Statistics on Income and Living Conditions (EU-SILC). EU-SILC is a dataset available annually since 2004, which collects household and personal information, including income, country of birth, education, age and region of residence, on a representative sample of the population in private households for several European countries. I use the cross-sectional version of the dataset, and use annual data for every year 2004-2008 for the following countries: Austria, Belgium, Germany, Denmark, Spain, Finland, France, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Sweden, and UK. In particular, I use the files *EUSILC XUDB 2004 - version of August 2009*, *EUSILC UDB 2005 – version 5 of August 2009*, *EUSILC UDB 2006 – version 4 of March 2010*, *EUSILC UDB 2007 – version 4 of August 2010*, and *EUSILC UDB 2008 – version 2 of August 2010*.

The level of detail and the exact definition of each variable in EU-SILC vary in some cases over time and across countries. I now explain in detail how the variables used in the analysis have been constructed. Throughout the analysis, I always restrict the attention to the working age population, which I define as population aged 16-65.

4.1.1. Income

I construct the indices of income inequality using information on employees' gross or net cash or near cash income (EU-SILC variables PY010G and PY010N). Both variables report the monetary component of the compensation of employees in cash payable by an employer to an employee and include: wages and salaries paid in cash for time worked or work done in main and any secondary or casual job(s), remuneration for time not worked (e.g. holiday payments), enhanced rates of pay for overtime, supplementary payments (e.g. thirteenth month payment), profit sharing and bonuses paid in cash, as well as any allowances paid by the employer to the employee. The gross variable includes also the value of any social contributions and income taxes payable by an employee or by the employer on behalf of the employee to social insurance schemes or tax authorities, while the net variable excludes taxes at source and social insurance contributions.

I use information on income of full time and part-time employees who report positive income.

Ideally, I would like to construct indices of before-taxes income inequality, as what I want to measure is the effect of immigration on inequality before any redistributive policy intervention. However, information on gross income is not present for all countries in all years. The first two columns of Table 4.1 report for each country the years in which information on gross and net income is available.

Table 4.1 — Summary of variables availability

Country	Income		Region	
	Gross	Net	NUTS1	NUTS2
Austria	2004 2005 2006 2007 2008	2004 2005 2006 2007 2008	2004 2005 2006 2007 2008	
Belgium	2004 2005 2006 2007 2008	2004 2005 2006 2007 2008	2004 2005 2006 2007 2008	
Germany	2005 2006 2007 2008	2005	2005(only 6 regions) 2006	
Denmark*	2004 2005 2006 2007 2008		2004 2005 2006 2007 2008	
Spain	2006 2008	2004 2005 2006 2007 2008		2004 2005 2006 2007 2008
Finland	2004 2005 2006 2007 2008			2004 2005 2006 2007 2008
France	2004 2005 2006 2007	2004 2005 2006 2007		2004 2005 2006 2007
Greece	2007 2008	2004 2005 2006 2007 2008	2004 2005 2006 2007 2008	
Ireland*	2004 2005 2006 2007 2008	2004 2005 2006 2007 2008	2004 2005 2006 2007 2008	
Italy	2007 2008	2004 2005 2006 2007 2008	2004 2005 2006 2007 2008	
Netherlands	2005 2006 2007 2008			
Norway*	2004 2005 2006 2007 2008		2004 2005 2006 2007 2008	
Portugal	2007 2008	2004 2005 2006 2007 2008		
Sweden	2004 2005 2006 2007 2008	2004 2005 2006 2007 2008	2008	
UK	2005 2006 2007 2008	2005 2006		

The left columns of the table report for each country the years in which data on gross and net income are available in EU-SILC. The right columns report for each country the years for which NUTS1 and NUTS2 identifiers are available in EU-SILC.
** countries in which NUTS1 coincides with the whole country.*

While some countries have both gross and net income information in all years (Austria, Belgium, France, Ireland, Sweden) others have only one type of income variable that is consistently available over time. I therefore construct four different versions of each inequality indicator, which vary according to what type of income (gross or net) is used in each country. In all cases, the income definition within each country is kept constant. In the first version (V1), I use gross income only for all countries; in the second version (V2) I use net income only for all countries. In the third version (V3) I use gross income in countries where this is available in all years, while for countries where this is not always available I use net or gross income depending on which variable is available for

more years; this results in using net income for Spain, Greece, Italy and Portugal, and gross income for all other countries. Finally, in the fourth version (V4) I use net income, except for countries where this is not available, or is available for fewer years than gross income; this results in using gross income for Germany, Denmark, Finland, the Netherlands, Norway, and the UK.

4.1.2. Regional identifiers

EU SILC contains information on region of residence, but the level of detail varies across countries, and over time. I have summarised in columns 3 and 4 of Table 4.1 the level of regional detail available for each country and year. NUTS2 identifiers are available for Finland, France and Spain only. Austria, Belgium, Greece and Italy have NUTS1 regional identifiers available in all years, while for Denmark, Ireland, and Norway NUTS1 coincides with the country. In Germany NUTS1 identifiers are available in 2005 and 2006 only, and regions are NUTS1 regions are grouped into 6 macro-regions. Finally, there are no regional identifiers in EU-SILC for the Netherlands, Portugal, and the UK, and regional identifiers are available in 2008 only for Sweden. In the analysis we use for every country the highest available level of disaggregation, available for all years. In practice this means using NUTS2 for Finland, France and Spain, NUTS1 for Austria, Belgium, Greece and Italy, the six macro regions available for Germany for the two years data are available, and country-level data for all other countries.

4.1.3. Immigration

EU-SILC allows distinguishing between individuals born in the country of residence, in another EU country, or out of the EU. I define immigrants as individuals born outside their country of residence, irrespective of whether they are EU or non-EU citizens. It should be noted that the EU-SILC sample is not supposed to be representative of the foreign born population, even when population weights are used - as I do throughout the analysis - and this is especially problematic when measuring immigration at the sub-national level. For this reason I also use information on immigrant concentration from the European Union Labour Force Survey, which has a larger sample size, (see below) as an alternative source of information on immigrant concentration.

4.1.4. Other variables

Information on individuals' education in EU-SILC is reported based on the six categories of the International Standard Classification of Education (ISCED). I group ISCED classifications into 3 macro categories of "low", "intermediate" and "high" education. I define as "low" education, education levels up to lower secondary, ISCED levels 0 to 2; as "intermediate" upper secondary education, ISCED level 3; as "high" education post-secondary or tertiary education, ISCED levels 4 and 5. For every geographic unit, I then compute indicators of educational

native composition as the ratio of the number of natives with high (intermediate) education relative to the number of natives with low education. In some specifications I also include controls for the average age of natives in the region, and for the size of the native regional population.

4.2. The European Union Labour Force Survey (EULFS)

The European Union Labour Force Survey (EU LFS) is conducted in the 27 Member States of the European Union and 2 countries of the European Free Trade Association (EFTA). It is a large quarterly household sample survey of people aged 15 and over. The quarterly sample is spread uniformly over all weeks of the quarter. The national statistical institutes are responsible for selecting the sample, preparing the questionnaires, conducting the direct interviews among households, and forwarding the results to Eurostat in accordance with the common coding scheme. Although the sampling schemes vary slightly, all countries apply a rotating panel design whereby the same individuals are interviewed for a fixed number of quarters, and then leave the sample.

The data collection covers the years 1983 to 2009, though not all countries are included in each year. The EULFS collects information on respondents' personal circumstances and labour market status and occupation as well as on country of birth. The main advantage of the EULFS over EU-SILC in our case is that the EULFS has a larger sample size, and this should alleviate sampling errors in measurement of immigrant concentration.

I use the EULFS to compute current regional immigrant concentration variables, which is used to check the robustness of results obtained when immigration is measured from EU- SILC, as well as to compute historical immigration variables, which are used as instrumental variables (see section 3 for details).

5. Descriptives

Table 5.1 reports some descriptive statistics based on EU- SILC on the relative composition of the foreign and native born working age population in each of the country we analyse, and overall across countries (see Dustmann and Frattini (2012) for a thorough descriptive analysis of immigration in Europe).

Table 5.1 – Descriptive statistics

		Average age	Education			Proportion in elementary occupations
			Low	Intermediate	High	
Austria	Natives	41.3	16.4	56.6	27.1	11.1
	Immigrants	40.8	36.2	39.1	24.7	29.8
Belgium	Natives	42.6	24.0	35.5	40.5	12.1
	Immigrants	42.2	29.4	33.0	37.6	24.6
Germany	Natives	41.8	9.9	47.9	42.2	7.0
	Immigrants	45.0	20.2	37.9	41.8	14.1
Denmark	Natives	41.7	22.7	47.4	29.8	8.8
	Immigrants	39.9	23.3	41.3	35.4	19.8
Spain	Natives	40.3	46.6	21.6	31.8	19.4
	Immigrants	36.5	36.5	34.8	28.6	32.5
Finland	Natives	42.3	18.1	45.4	36.5	9.0
	Immigrants	36.9	5.2	54.3	40.5	15.3
France	Natives	41.7	27.3	47.6	25.1	11.5
	Immigrants	45.1	46.5	30.5	23.0	21.3
Greece	Natives	40.9	30.8	35.0	34.2	9.0
	Immigrants	38.6	33.0	40.8	26.2	26.3
Ireland	Natives	40.3	35.4	27.5	37.1	14.0
	Immigrants	37.5	21.1	21.4	57.4	13.9
Italy	Natives	42.8	45.6	34.8	19.6	10.7
	Immigrants	37.8	46.9	39.9	13.2	23.6
Netherlands	Natives	41.7	25.3	39.3	35.5	6.2
	Immigrants	41.2	23.0	44.8	32.2	14.7
Norway	Natives	40.8	15.6	48.8	35.6	4.0
	Immigrants	38.4	21.2	36.9	41.9	11.9
Portugal	Natives	41.2	71.0	14.7	14.3	15.8
	Immigrants	35.4	49.1	28.7	22.2	14.3
Sweden	Natives	42.2	12.2	49.1	38.8	4.0
	Immigrants	42.7	18.6	42.7	38.7	11.0
UK	Natives	41.1	17.0	49.8	33.2	12.3
	Immigrants	39.5	17.9	26.6	55.4	16.4
All countries	Natives	41.6	27.8	40.7	31.5	11.2
	Immigrants	41.0	32.6	34.3	33.0	20.7

The table reports, for each country the average age of immigrants and natives, the educational distribution of immigrants and natives, and the percentage of immigrant and native employees working in elementary occupations (ISCO category number 9) out of total immigrants or natives employees.
Low education: ISCED levels 0-2; Intermediate education: ISCED level 3; High education: ISCED levels 5 and 6.
Working age population (16-65) only.
Source: EU-SILC years 2004-2008.

In most countries immigrants are on average younger than natives. Across countries, the average age of natives is 41.6 years, and the average age of immigrants is 41. However, large disparities exist between countries: in France and Germany immigrants are on average over three years older than natives, while for instance in Italy and Finland they are over five years younger than natives, and almost four years younger in Spain. The educational distribution of immigrants is slightly more polarised than that of natives, but large differences exist across countries. In columns 2 -4 of Table 5.1 we report the distribution of immigrants and natives across educational groups. We define three education groups, "low", "intermediate" and "high", in accordance with the International Standard Classification of Education (ISCED) categorisation. Specifically, we group ISCED levels 0-2, or individuals with less than secondary education, into "low"; ISCED level 3, or (upper) secondary into "intermediate", and ISCED levels 4 and 5, or post-secondary and tertiary education, into "high". On average across Europe 28% of natives and 33% of immigrants have low education, while 31% of natives and 33% of immigrants have high education. Again, there are large differences between countries. In the UK and Ireland the share of immigrants with a high level of education is over 50%, and the share of natives with comparable education is 33% and 37%, respectively; conversely in Italy, for instance, it is just 13% among immigrants and 20% among natives.[3].

The last column of Table 5.1 reports the share of immigrants and natives who are employed in an elementary occupation, the least skilled occupational category according to the International Standard Classification of Occupations (ISCO, category 9). Immigrants are twice as concentrated in these occupations as natives: on average across countries 21% of immigrants and 11% of natives are employed in an elementary occupation. The relative concentration is highest in Greece, Austria, Italy and Sweden, where immigrants are about three times more likely than natives to work in an elementary occupation, and lowest in Ireland, Portugal and the UK, where natives and immigrants are equally likely to work in these occupations.

Table 5.2 reports mean and standard deviations across regions and years, by country, for all the regressors used in the analysis. The last column reports the number of observations used for each country (number of observations= number of regions x number of years).

3 These numbers should be interpreted with care due to the imperfect comparability of school qualifications across countries.

Table 5.2 — Means and standard deviations of regressors

Country		Imm/nat ratio		Education				
		EU-SILC	EULFS	High/Low	Intermed/ Low	Age	Log natives	N
Austria	mean	0.189	0.190	1.89	4.00	38.63	14.21	12
	sd	0.073	0.078	0.32	0.50	0.38	0.27	
Belgium	mean	0.332	0.317	2.14	1.48	39.65	14.13	12
	sd	0.312	0.296	0.73	0.21	0.44	0.99	
Germany	mean	0.088	0.094	3.33	4.53	39.76	15.90	6
	sd	0.029	0.031	0.98	0.95	0.57	0.31	
Denmark	mean	0.066	0.088	1.34	2.10	41.68	15.01	4
	sd	0.005	0.017	0.13	0.07	0.12	0.00	
Spain	mean	0.081	0.163	0.77	0.51	38.58	13.65	74
	sd	0.046	0.087	0.31	0.15	1.00	1.24	
Finland	mean	0.030	0.026	1.90	2.62	41.54	13.45	16
	sd	0.012	0.011	0.21	0.32	0.74	0.61	
France	mean	0.114	0.106	0.90	1.75	38.97	13.99	66
	sd	0.099	0.074	0.37	0.55	1.09	0.85	
Greece	mean	0.093	0.081	1.01	1.10	38.79	14.17	16
	sd	0.025	0.027	0.50	0.31	0.65	0.55	
Ireland	mean	0.147	0.089	1.08	0.79	38.28	14.74	4
	sd	0.017	0.114	0.06	0.08	0.62	0.02	
Italy	mean	0.082	0.085	0.46	0.76	40.62	15.73	20
	sd	0.033	0.034	0.08	0.15	0.89	0.29	
Netherlands	mean	0.069	0.147	1.39	1.56	40.19	16.12	3
	sd	0.003	0.000	0.09	0.08	0.45	0.01	
Norway	mean	0.092	0.094	2.46	3.41	41.79	14.81	4
	sd	0.003	0.004	1.35	2.55	0.30	0.02	
Portugal	mean	0.050	0.083	0.20	0.21	38.97	15.72	4
	sd	0.019	0.007	0.00	0.00	0.42	0.02	
Sweden	mean	0.141	0.173	3.27	4.14	42.06	15.44	4
	sd	0.006	0.008	0.15	0.23	0.10	0.02	
UK	mean	0.130	0.148	1.98	3.30	40.39	17.37	3
	sd	0.005	0.014	0.38	1.19	0.46	0.00	
Total	mean	0.107	0.130	1.15	1.53	39.33	14.23	248
	sd	0.107	0.108	0.78	1.20	1.35	1.18	

The table reports means and standard deviation across regions and years of all independent variables used in the regression analysis, by country. Columns 1 and 2 report the ratio of working age immigrants to natives based on EU-SILC (column 1) and EULFS (column2), column 3 reports the ratio of natives with high education to natives with low education, and column 4 reports the ratio of natives with intermediate education to natives with low education Column 5 reports the average age of working age natives, and column 6 reports the log of the size of the native population. The last column reports the total number of observations per country.
We define working age as 16 to 65.
Source: EU-SILC and EULFS, 2004-2008.

Columns 1 and 2 report the ratio of working age immigrants to working age natives measured from EU-SILC (column 1) and from the EULFS (column 2). Figures from EU-SILC and from the EULFS are similar in all countries, with some considerable deviations in Spain, Ireland, and the Netherlands, where the average ratio of

immigrants to natives is 0.08, 0.15, and 0.07, respectively, according to EU-SILC and 0.16, 0.09, 0.15 according to the EULFS. Belgium is the country with the highest mean immigrants/natives ratio, at over 0.3, while Finland is the country with the least immigrant concentration, at about 0.3. Columns 3 and 4 report the mean of the ratios of natives with high education to natives with low education (column 3) and the mean of the ratios of natives with intermediate education to natives with low education (column 4), while column 5 reports the mean native age. These values reflect the distribution of educational qualifications and the mean age observed in Table 5.1. In column 6 I have reported the mean of the regional log native population, which is obviously bigger for those countries, like the UK, where the unit of observation is the whole country.

In Table 5.3 I report means and standard deviations across years, by country, of the five indicators of income inequality, based on either gross (odd columns) or net (even columns) income, or on both for countries where both are available: the log of the $90^{th}/10^{th}$ income percentile ratio (columns 1 and 2), the log of the 90th /50th income percentile ratio (columns 3 and 4), the log of the 50th /10th income percentile ratio (columns 5 and 6), the log of the 75th /25th income percentile ratio (columns 7 and 8), and the Gini index (columns 9 and 10)4.

Table 5.3 — Means and standard deviations of inequality indices

		90/10		90/50		50/10		75/25		Gini	
Country		Gross	Net	Gross	Net	Gross	Net	Gross	Net	Gross	Net
Austria	mean	1.81	1.58	0.67	0.56	1.14	1.02	0.80	0.67	0.34	0.30
	sd	0.13	0.13	0.04	0.03	0.10	0.12	0.07	0.06	0.02	0.02
Belgium	mean	1.30	1.10	0.54	0.45	0.76	0.65	0.56	0.46	0.30	0.27
	sd	0.14	0.12	0.03	0.02	0.14	0.11	0.03	0.02	0.04	0.04
Germany	mean	2.40	.	0.61	.	1.79	.	1.13	.	0.37	.
	sd	0.10	.	0.04	.	0.09	.	0.08	.	0.01	.
Denmark	mean	1.24	.	0.46	.	0.78	.	0.48	.	0.26	.
	sd	0.04	.	0.02	.	0.05	.	0.01	.	0.00	.
Spain	mean	1.57	1.45	0.66	0.61	0.90	0.84	0.71	0.63	0.31	0.29
	sd	0.18	0.17	0.08	0.07	0.15	0.14	0.08	0.08	0.03	0.02
Finland	mean	1.48	.	0.54	.	0.93	.	0.57	.	0.29	.
	sd	0.08	.	0.05	.	0.07	.	0.05	.	0.02	.
France	mean	1.47	1.47	0.60	0.58	0.87	0.88	0.58	0.60	0.30	0.30
	sd	0.20	0.19	0.08	0.07	0.19	0.19	0.08	0.07	0.04	0.04
Greece	mean	1.67	1.45	0.74	0.55	0.93	0.90	0.86	0.73	0.35	0.30
	sd	0.12	0.11	0.03	0.02	0.12	0.12	0.09	0.10	0.01	0.01
Ireland	mean	2.12	1.83	0.84	0.67	1.28	1.16	1.04	0.87	0.40	0.34
	sd	0.08	0.07	0.03	0.02	0.04	0.05	0.05	0.05	0.01	0.01
Italy	mean	1.40	1.21	0.59	0.51	0.81	0.71	0.62	0.53	0.30	0.26
	sd	0.13	0.16	0.04	0.03	0.13	0.15	0.08	0.06	0.02	0.02
Netherlands	mean	1.83	.	0.65	.	1.18	.	0.84	.	0.35	.
	sd	0.02	.	0.02	.	0.00	.	0.03	.	0.00	.
Norway	mean	1.54	.	0.53	.	1.00	.	0.64	.	0.31	.

4 I report all inequality indices, for each region and year, in the Data Appendix.

	sd	0.03	.	0.01	.	0.02	.	0.01	.	0.01	.
Portugal	mean	1.67	1.48	1.02	0.90	0.65	0.58	0.84	0.73	0.41	0.37
	sd	0.04	0.07	0.08	0.07	0.04	0.03	0.02	0.02	0.02	0.02
Sweden	mean	1.61	1.46	0.51	0.42	1.10	1.03	0.60	0.56	0.30	0.27
	sd	0.03	0.04	0.01	0.01	0.03	0.03	0.02	0.02	0.00	0.00
UK	mean	1.88	1.62	0.79	0.69	1.08	0.93	0.88	0.74	0.39	0.34
	sd	0.03	.	0.02	.	0.01	.	0.01	.	0.02	.
Total	mean	1.56	1.43	0.62	0.58	0.94	0.85	0.67	0.62	0.31	0.29
	sd	0.26	0.20	0.10	0.09	0.23	0.18	0.15	0.10	0.04	0.03

The table reports means and standard deviation across regions and years of all indicators of income inequality for working age natives used in the regression analysis, by country. Columns 1 and 2 report the log ratio of the 90th to the 10th native income percentile; columns 3 and 4 report the log ratio of the 90th to the 50th native income percentile; columns 5 and 6 report the log ratio of the 50th to the 10th native income percentile; columns 7 and 8 report the log ratio of the 75th to the 25th native income percentile; columns 9 and 10 report the Gini index. Odd columns are based on gross income and even columns are based on net income. We define working age as 16 to 65. Source: EU-SILC, 2004-2008.

Germany and Ireland are the countries with the highest mean 90/10 inequality, while Belgium and Denmark are the countries with the lowest mean 90/10 ratio. In all countries, except for Portugal, the 90/50 ratio is lower than the 50/10 ratio. Ireland and Portugal have the highest mean values of the Gini index, while Denmark and Finland are the two countries with the lowest mean Gini indices. As expected, income dispersion is highest when computed on gross rather than net income.

In Table A1 in the Appendix I report mean values and standard deviations across all countries and years of the annual changes in all variables used in the regressions.

6. Results

6.1. OLS Results

Table 6.1 reports estimates of the coefficient β in equation (1) where the dependent variable is, alternatively: the log of the 90/10 percentile ratio (row 1), the log of the 90/50 percentile ratio (row 2), the log of the 50/10 percentile ratio (row 3), the log of the 75/25 percentile ratio (row 4), and the Gini index (row 5).

Table 6.1 — OLS Results, immigration from EU-SILC

Percentile Ratio	V1		V2		V3		V4	
90/10	-0.627***	-1.012**	-0.424**	-0.314	-0.477**	-0.599	-0.523***	-0.648*
	(0.152)	(0.384)	(0.191)	(0.318)	(0.197)	(0.363)	(0.167)	(0.339)
90/50	0.378***	0.283*	0.352***	0.347***	0.341***	0.314***	0.414***	0.365***
	(0.062)	(0.144)	(0.053)	(0.059)	(0.055)	(0.049)	(0.061)	(0.067)
50/10	-1.005***	-1.295***	-0.776***	-0.661**	-0.819***	-0.913**	-0.938***	-1.013***
	(0.166)	(0.313)	(0.204)	(0.295)	(0.214)	(0.348)	(0.178)	(0.307)
75/25	-0.065	-0.351*	-0.007	-0.057	-0.037	-0.185*	-0.019	-0.138
	(0.069)	(0.185)	(0.063)	(0.077)	(0.069)	(0.097)	(0.077)	(0.117)
Gini	0.144***	0.228***	0.148***	0.199***	0.161***	0.188***	0.140***	-0.088
	(0.034)	(0.060)	(0.032)	(0.041)	(0.034)	(0.048)	(0.032)	(0.062)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
N	182	182	213	213	248	248	248	248

The table reports the estimated coefficient on the change in regional immigrant-native ratio (measured from EU-SILC) from separate regression of difference in regional log percentiles ratios or in the Gini index (specified in the column 1) on changes in regional immigrant-native ratios, year dummies and, in some specifications, other controls.V1-V4: different income definitions, see text for details.
Other controls: log number of native working age population, average age of native working age population, ratio of high skilled natives to low skilled natives and of intermediate skilled natives to low skilled natives.
Standard errors in parenthesis are clustered at the regional level.
** denotes significance at 10% ** denotes significance at 5% *** denotes significance at 1%*

As I explain in section 4.1.1, I have computed each of these inequality indicators using four different income measures. The table reports results from all of these measures: in column V1 the indicator is based on gross income, in column V2 the indicator is based on net income, while in column V3 (V4) the indicator is based on gross (net) income for all countries except Spain, Greece, Italy and Portugal (Germany, Denmark, Finland, the Netherlands, Norway, and the UK) where it is based on net (gross) income, due to data availability. For each version of the indicator I report results from a specification without any control variables except for time dummies, and results from a fuller specification where I additionally control for the following regional characteristics: log number of native

residents, average age of natives, and ratio of high skilled and intermediate skilled natives to low skilled natives. Note that I cannot control for country-year effects because for some countries I have only one observation per year.

Results are qualitatively consistent across specifications, although the size and statistical significance of the estimated effects change slightly. The relative stability of results across specifications is remarkable because moving from V1 to V4 we change both the type of income on which the inequality index is based (gross or net) and the countries and time periods analysed (see the discussion in section 4.1 and Table 4.1).

Table 6.1 indicates clearly a positive correlation between inflow of immigrants and the 90-50 income percentile differential: the estimated coefficient ranges between 0.283 and 0.414, depending on the specifications, and it is always statistically significant at conventional significance levels. Regression results indicate instead a negative correlation between immigration and the 50-10 income percentile differential, ranging between -0.661 and -1.295. These results indicate therefore that immigration is associated with an increase of inequality at the top of the income distribution, and a decrease of inequality at the bottom. Because the decrease of inequality at the bottom is in all specifications at least twice as high in magnitude as the increase at the top, the overall effect on the 90-10 income percentile gap is negative, although the estimated coefficient is not statistically significant in all estimates. Results of Table 6.1 do not indicate any statistically significant association between immigration and the interquartile income differential: the estimated coefficient is negative but very small and imprecisely estimated in all specifications, except for V1 and V3 where it is however only marginally significant. Finally, immigration is associated with an increase in the Gini index: the estimated coefficient ranges between 0.140 and 0.228.

In terms of magnitude, my estimates imply that an increase in immigration of the size of 1% of the native population is associated with a decrease in the 50/10 percentile ratio of between 0.6%, and 1.3% , an increase in the 90/50 income percentile ratio of between 0.28% and 0.41%, and an increase in the Gini index of between 0.14 and 0.23 points.

As I explain in section 4.1.3, there is some concern about the extent to which EU-SILC provides a regionally representative sample of immigrants. For this reason, in Table 6.2 I have replicated the estimates shown above using the EULFS as the source for measurement of immigration.

Table 6.2 – OLS Results, immigration from EULFS

Percentile Ratio	V1		V2		V3		V4	
90/10	-1.033	-0.936*	-0.69	-0.624	-0.944*	-0.908**	-1.029*	-0.982**
	(0.657)	(0.536)	(0.529)	(0.445)	(0.512)	(0.439)	(0.569)	(0.492)
90/50	-0.157	-0.181*	-0.013	-0.01	-0.04	-0.039	-0.124	-0.127
	(0.105)	(0.094)	(0.094)	(0.093)	(0.090)	(0.093)	(0.100)	(0.100)
50/10	-0.875	-0.755	-0.678	-0.614	-0.904**	-0.869**	-0.906*	-0.854*
	(0.594)	(0.490)	(0.462)	(0.383)	(0.449)	(0.378)	(0.507)	(0.432)
75/25	-0.185	-0.125	-0.107	-0.043	-0.236	-0.176	-0.178	-0.113
	(0.226)	(0.165)	(0.180)	(0.138)	(0.188)	(0.138)	(0.211)	(0.157)
Gini	-0.075	-0.065	-0.064	-0.062	-0.079	-0.076	-0.088	-0.087
	(0.066)	(0.063)	(0.069)	(0.063)	(0.058)	(0.053)	(0.062)	(0.056)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
N	182	182	213	213	248	248	248	248

The table reports the estimated coefficient on the change in regional immigrant-native ratio (measured from the EULFS) from separate regression of difference in regional log percentiles ratios or in the Gini index (specified in the column 1) on changes in regional immigrant-native ratios, year dummies and, in some specifications, other controls.V1-V4: different income definitions, see text for details.
Other controls: log number of native working age population, average age of native working age population, ratio of high skilled natives to low skilled natives and of intermediate skilled natives to low skilled natives.
Standard errors in parenthesis are clustered at the regional level.
** denotes significance at 10% ** denotes significance at 5% *** denotes significance at 1%*

Results using the EULFS show a number of dissimilarities from those of table 6.1. Firstly, when the inequality index is based on V1 and V2 (i.e. only on gross or only on net income) estimated coefficients are not significant for any index in any specification (except for the 90/10 and 90/50 ratio in V1 with all controls). Second, even when the index is based on V3 and V4, and therefore estimates are based on a higher number of observations, the estimated coefficient on the 90/50 percentile ratio is estimated to be negative, but small and never statistically significant. The estimates of the correlation between immigration and the 50/10 differential, based on V3 and V4, are instead very similar to those of Table 6.1, ranging between -0.85 and -0.9. Since there is no association between immigration and changes in inequality in the upper part of the distribution, the effect on the 50/10 ratio is also reflected in estimated coefficients on the 90/10 percentiles of similar magnitude, ranging between -0.9 and -1. Finally, the correlation between immigration and the Gini index becomes negative and not statistically significant in all specifications.

Estimates in the tables above are based on different regional definitions, as explained in section 4.1.2: NUTS2 for Finland, France and Spain, NUTS1 for Austria, Belgium, Greece and Italy, six macro regions for Germany, and country-level data for Denmark, Ireland, the Netherlands, Norway, Portugal, Sweden and the UK. In Tables 6.3

and 6.4 I replicate the regressions of Tables 6.1 and 6.2, respectively, but I only use for estimation countries for which I have regional identifiers. Results are very similar to those with the full sample.

Table 6.3 — OLS Results, immigration from EU-SILC, only countries with multiple regions

Percentile Ratio	V1		V2		V3		V4	
90/10	-0.638***	-1.065***	-0.459**	-0.349	-0.491**	-0.619*	-0.542***	-0.689**
	(0.155)	(0.381)	(0.177)	(0.313)	(0.197)	(0.366)	(0.165)	(0.340)
90/50	0.398***	0.296*	0.363***	0.355***	0.360***	0.334***	0.432***	0.374***
	(0.056)	(0.159)	(0.052)	(0.064)	(0.050)	(0.059)	(0.060)	(0.078)
50/10	-1.036***	-1.361***	-0.821***	-0.704**	-0.850***	-0.954***	-0.974***	-1.063***
	(0.159)	(0.308)	(0.183)	(0.288)	(0.202)	(0.345)	(0.166)	(0.302)
75/25	-0.071	-0.390**	-0.019	-0.07	-0.042	-0.198**	-0.027	-0.166
	(0.070)	(0.177)	(0.065)	(0.075)	(0.071)	(0.097)	(0.076)	(0.110)
Gini	0.147***	0.229***	0.148***	0.199***	0.166***	0.191***	0.145***	0.172***
	(0.033)	(0.057)	(0.033)	(0.041)	(0.033)	(0.046)	(0.033)	(0.041)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
N	159	159	200	200	222	222	222	222

The table reports the estimated coefficient on the change in regional immigrant-native ratio (measured from EU-SILC) from separate regression of difference in regional log percentiles ratios or in the Gini index (specified in the column 1) on changes in regional immigrant-native ratios, year dummies and, in some specifications, other controls.V1-V4: different income definitions, see text for details.
Other controls: log number of native working age population, average age of native working age population, ratio of high skilled natives to low skilled natives and of intermediate skilled natives to low skilled natives.
Regressions include only countries where regional identifiers are available.
Standard errors in parenthesis are clustered at the regional level.
** denotes significance at 10% ** denotes significance at 5% *** denotes significance at 1%*

Table 6.4 - OLS Results, immigration from EULFS, only countries with multiple regions

Percentile Ratio	V1		V2		V3		V4	
90/10	-1.208	-1.075	-0.788	-0.697	-1.091*	-1.034*	-1.161*	-1.098*
	(0.794)	(0.676)	(0.623)	(0.532)	(0.603)	(0.528)	(0.675)	(0.598)
90/50	-0.167	-0.208*	-0.01	-0.008	-0.039	-0.036	-0.125	-0.134
	(0.134)	(0.119)	(0.114)	(0.115)	(0.111)	(0.115)	(0.124)	(0.123)
50/10	-1.041	-0.866	-0.778	-0.689	-1.053**	-0.998**	-1.036*	-0.964*
	(0.712)	(0.624)	(0.540)	(0.457)	(0.522)	(0.450)	(0.595)	(0.523)
75/25	-0.208	-0.113	-0.103	-0.012	-0.268	-0.18	-0.185	-0.096
	(0.287)	(0.220)	(0.219)	(0.165)	(0.231)	(0.174)	(0.260)	(0.200)
Gini	-0.087	-0.075	-0.073	-0.071	-0.088	-0.085	-0.099	-0.097
	(0.081)	(0.078)	(0.082)	(0.076)	(0.070)	(0.062)	(0.075)	(0.067)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
N	159	159	200	200	222	222	222	222

The table reports the estimated coefficient on the change in regional immigrant-native ratio (measured from the EULFS) from separate regression of difference in regional log percentiles ratios or in the Gini index (specified in the column 1) on changes in regional immigrant-native ratios, year dummies and, in some specifications, other controls.V1-V4: different income definitions, see text for details.
Other controls: log number of native working age population, average age of native working age population, ratio of high skilled natives to low skilled natives and of intermediate skilled natives to low skilled natives.
Regressions include only countries where regional identifiers are available.
Standard errors in parenthesis are clustered at the regional level.
** denotes significance at 10% ** denotes significance at 5% *** denotes significance at 1%*

6.2. IV Results

Results presented in section 6.1 indicate that immigration is robustly associated with a reduction in inequality at the bottom of the income distribution, while evidence about association with inequality at the top is mixed. However, results from tables 6.1-6.4 can be given a causal interpretation only under the (very strong) assumption that immigrants' location choices are not correlated with the regional income inequality dynamics. In order to assess the causal effect of immigration on income inequality we have to rely on IV estimates.

As explained in section 3, I follow most of the literature and build an IV variable based on location choices of immigrants in the past. In particular, I use as an instrument the regional 2001 immigrants-natives ratio, from the EULFS, interacted with year dummies. Since I do not have regional information on immigration in 2001 from the EULFS for Germany and Italy, IV results are based on a smaller number of observations. Results are reported in Table 6.5, where I measure immigration from EU-SILC, and in Table 6.6, where I measure immigration from the EULFS. At the bottom of each table I report the F-statistics for significance of excluded instruments in the first stage regressions.

Table 6.5 — IV Results, immigration from EU-SILC

Percentile Ratio	V1		V2		V3		V4	
90/10	-1.136	-1.151	-0.105	-0.114	0.207	0.226	-0.998	-0.953
	(1.617)	(1.931)	(1.616)	(2.147)	(1.606)	(1.972)	(1.561)	(1.780)
90/50	0.421	0.179	0.302	0.377	0.309	0.302	0.548	0.482
	(0.671)	(0.943)	(0.534)	(0.745)	(0.505)	(0.649)	(0.650)	(0.846)
50/10	-1.557	-1.329	-0.407	-0.491	-0.102	-0.077	-1.545	-1.434
	(1.620)	(1.719)	(1.430)	(1.742)	(1.443)	(1.654)	(1.506)	(1.590)
75/25	0.198	0.26	-0.292	-0.459	-0.274	-0.258	0.19	0.429
	(0.486)	(0.515)	(0.467)	(0.554)	(0.480)	(0.495)	(0.504)	(0.597)
Gini	0.462	0.545	0.48	0.56	0.502	0.627	0.499	0.549
	(0.536)	(0.654)	(0.512)	(0.654)	(0.505)	(0.643)	(0.500)	(0.593)
F-statistics for significance of excluded instruments	15.83	2.72	15.83	2.72	15.83	2.72	15.83	2.72
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
N	171	171	193	193	222	222	222	222

The table reports the estimated IV coefficient on the change in regional immigrant-native ratio (measured from EU-SILC) from separate regression of difference in regional log percentiles ratios or in the Gini index (specified in the column 1) on changes in regional immigrant-native ratios, year dummies and, in some specifications, other controls.V1-V4: different income definitions, see text for details.
IV: regional immigrants/natives ratio in 2001(from the EULFS) interacted with year dummies.
Other controls: log number of native working age population, average age of native working age population, ratio of high skilled natives to low skilled natives and of intermediate skilled natives to low skilled natives.
Standard errors in parenthesis are clustered at the regional level.
** denotes significance at 10% ** denotes significance at 5% *** denotes significance at 1%*

In Table 6.5 the first-stage F-statistics is 15.8 in the basic specification without controls, but it drops to 2.72 when I include controls for natives' age, education and population size. The large difference between the first stage statistics in the basic and the augmented specification indicates that it is important to control for these additional variables. The F-statistics for the complete specification is well below the conventional rule of thumb of 10 suggested by Staiger and Stock (1997) and indicates that my instruments are weak.

IV estimates display no significant coefficient, which might be at least partly due to the weakness of the instruments. Point estimates are however in line with the OLS estimates. The exceptions are the estimates of the coefficient for the interquartile income gap, which is estimated to be positive when income is measured with V1 or V4. Standard errors are however very large and the coefficients are far from being significant at conventional levels.

Measuring immigration from the EULFS (Table 6.6) leads to results that are very similar to those of Table 6.5.

Table 6.6 — IV Results, immigration from EULFS

Percentile Ratio	V1		V2		V3		V4	
90/10	-1.365	-0.991	-0.726	0.032	-0.796	-0.427	-1.183	-0.857
	(0.979)	(1.641)	(1.069)	(2.093)	(1.035)	(1.595)	(1.159)	(1.783)
90/50	0.108	-0.047	0.038	-0.067	-0.053	-0.192	0.32	0.184
	(0.331)	(0.393)	(0.300)	(0.422)	(0.250)	(0.299)	(0.490)	(0.568)
50/10	-1.473*	-0.944	-0.765	0.099	-0.743	-0.235	-1.503*	-1.041
	(0.772)	(1.389)	(0.875)	(1.809)	(0.896)	(1.430)	(0.785)	(1.324)
75/25	0.105	0.503	-0.203	0.174	-0.26	0.032	0.162	0.616
	(0.288)	(0.621)	(0.333)	(0.406)	(0.361)	(0.357)	(0.313)	(0.610)
Gini	0.076	0.15	0.095	0.181	0.083	0.147	0.071	0.101
	(0.111)	(0.198)	(0.097)	(0.229)	(0.140)	(0.224)	(0.093)	(0.164)
F-statistics for significance of excluded instruments	6.43	2.50	6.43	2.50	6.43	2.50	6.43	2.50
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes
N	171	171	193	193	222	222	222	222

The table reports the estimated IV coefficient on the change in regional immigrant-native ratio (measured from EULFS) from separate regression of difference in regional log percentiles ratios or in the Gini index (specified in the column 1) on changes in regional immigrant-native ratios, year dummies and, in some specifications, other controls.V1-V4: different income definitions, see text for details.
IV: regional immigrants/natives ratio in 2001(from the EULFS) interacted with year dummies.
Other controls: log number of native working age population, average age of native working age population, ratio of high skilled natives to low skilled natives and of intermediate skilled natives to low skilled natives.
Standard errors in parenthesis are clustered at the regional level.
** denotes significance at 10% ** denotes significance at 5% *** denotes significance at 1%*

Overall, IV estimates do not indicate any effect of immigration on income inequality. However, the instruments are weak, and estimates are therefore imprecise.

7. Discussion and conclusions

Rising immigration in Europe is causing concerns about its potential negative effects on the welfare of residents. This paper provides a first analysis of the link between immigration and income inequality for all Western European countries. The analysis builds on a standard methodology used in studies on the labour market impact of immigration, and provides estimates of the correlation between immigration and changes in native income inequality at different points of the income distribution.

I show that immigration is correlated with a decrease in individual income inequality, especially at the bottom of the distribution. My estimates imply that an increase in immigration of the size of 1% of the native population is associated with a decrease of about 0.85% in the ratio of the median to the 10^{th} percentile of the individual income distribution. This finding is robust across a variety of definitions of income and of immigration data sources. Results at other points of the distribution or with other indicators of inequality are less robust, and depend on the data sources and variable considered. I have also tried to estimate the causal effect of immigration on inequality, using an IV strategy that is common to most studies on the economic impact of immigration. However, my IV estimates do not indicate any significant effect of immigration on inequality, though this is possibly due to the weakness of the instrumental variables.

As I discuss above, a European-wide analysis of the interaction between immigration and inequality is difficult because of several data limitations, and problematic because of a key conceptual issue.

As regards data, my analysis is based on all available years (2004/2008) of EU-SILC, which is the EU reference source for indicators of poverty and social inclusion. However, the cross sectional EU-wide current version of the dataset does not always provide comparable variables across countries. First, regional indicators are not consistently available across countries, so that the analysis has to rely on different levels of regional detail for different countries. Second, gross income is not available in all countries and years, and neither is net income, so that I am not able to construct comparable indicators of inequality based on the same income definition for all regional units. Third, measurement of regional immigrant concentration from EU-SILC is problematic. I partly correct for this by checking the robustness of my results when using EULFS to measure regional immigrant density. Results are not entirely robust to the change in the migration data source. Finally, I am not able to find a strong instrumental variable for the regional immigrant inflows. I follow most of the earlier literature and build an IV which is based on location choices of immigrants in the past. However, these appear to be only weakly correlated with the current regional distribution of immigrant inflows. One reason for this might be that as immigration to most European

countries is relatively recent, there are no strong migrant networks; or even if such networks do operate, the data that are currently available do not allow measurement of past immigration at the local level precisely enough to exploit them to construct my instrumental variables. As a result, while OLS estimates indicate a negative correlation between the inflow of immigrants and growth of inequality, in particular at the bottom of the income distribution, IV estimates turn out to be never statistically significant. I am therefore not able to give any causal interpretation to my estimates.

Conceptually, my estimates should provide the average effect of immigration on inequality across Europe. However, as I discuss in section 2 based on results from previous studies and on theoretical considerations, the effect of immigration on inequality will depend crucially on the skill composition of immigrants and, especially, on the type of occupations they take up in the host country labour markets. I show in section 5 that the educational and occupational distribution of natives changes substantially across countries. It is therefore reasonable to expect that immigration will have different, and possibly opposing, effects in different countries. For instance, in countries like Ireland, where immigrants are substantially more skilled than natives, immigration is likely to decrease inequality, as it will likely depress wages at the upper end of the income distribution. In contrast, immigration might increase inequality in countries like Austria or Germany, where immigrants are substantially less skilled than natives, both in terms of their educational qualifications and occupational distribution. Estimates of a Europe-wide single coefficient might therefore mix up different effects across countries. Unfortunately, the limited amount of data point available does not allow an analysis that distinguishes between countries with different types of immigration.

My analysis does not show any evidence of a causal link between immigration and inequality in Europe. As I explain, this might be due to data limitations that I cannot currently overcome. However, many country-specific studies have showed how the effects of immigration on income tend to be modest in magnitude, even when they are statistically significant. A main obstacle to European comparative research is the scarcity of adequate comparable microdata, as I have highlighted in this paper. In particular, the growing integration and interdependence of European migration policies, and the increasing importance of immigration as a key European policy issue calls for better data sources on size, composition, and characteristics of the foreign born population across countries. Availability of good data on immigration and of comparable information on income will allow more precise assessment of the effect of immigration on inequality in Europe.

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Appendix

Table A1 — Mean and standard deviation of variables

		Mean	Standard Deviation
1	Immigrants/natives (EU-SILC)	0.30%	3.49%
2	Immigrants/natives (EULFS)	0.95%	3.85%
3	High education/Low education	3.95%	30.51%
4	Intermediate education/Low education	2.83%	47.25%
5	Average native age	6.89%	64.70%
6	Log natives	1.99%	8.55%
7	V3: log 90/10 percentile ratio	1.44%	17.68%
8	V4: log 90/10 percentile ratio	3.22%	17.56%
9	V3: log 90/50 percentile ratio	-0.14%	5.51%
10	V4: log 90/50 percentile ratio	1.00%	7.19%
11	V3: log 50/10 percentile ratio	1.58%	16.29%
12	V4: log 50/10 percentile ratio	2.22%	15.46%
13	V3: log 75/25 percentile ratio	0.92%	8.17%
14	V4: log 75/25 percentile ratio	2.00%	8.77%
15	V3: Gini index	-0.02%	2.68%
16	V4: Gini index	0.37%	2.81%

The table reports mean and standard deviations of all variables used in the regressions. Row 1(2) reports the immigrants/ natives ratio from EU-SILC (EULFS); row 3(4) reports the ratio of natives with high (intermediate) education to natives with low education; row 5 reports the average native age; column 6 the log native population; rows 7 to 16 report V3 and V4 versions of the five indicators of native income inequality. See text for details.

Data Appendix — Regional Inequality Indices

	Year	Region	Gross Income					Net Income				
			log 90/10	log 90/50	log 50/10	log 75/25	Gini	log 90/10	log 90/50	log 50/10	log 75/25	Gini
Austria	2004	AT1	1.722	0.665	1.057	0.730	0.328	1.532	0.560	0.972	0.620	0.291
	2005	AT1	1.697	0.625	1.073	0.710	0.333	1.469	0.524	0.944	0.610	0.298
	2006	AT1	2.080	0.694	1.386	0.798	0.358	1.861	0.560	1.301	0.651	0.319
	2007	AT1	1.809	0.711	1.099	0.840	0.354	1.580	0.595	0.984	0.735	0.314
	2008	AT1	1.775	0.711	1.064	0.811	0.350	1.560	0.593	0.967	0.649	0.305
	2004	AT2	1.792	0.606	1.185	0.774	0.338	1.624	0.526	1.098	0.641	0.303
	2005	AT2	1.616	0.633	0.983	0.670	0.302	1.368	0.531	0.838	0.583	0.266
	2006	AT2	1.700	0.625	1.076	0.814	0.320	1.484	0.558	0.925	0.631	0.281
	2007	AT2	1.874	0.680	1.194	0.875	0.346	1.612	0.558	1.054	0.698	0.303
	2008	AT2	1.743	0.634	1.109	0.766	0.327	1.495	0.539	0.956	0.642	0.291
	2004	AT3	1.802	0.662	1.140	0.828	0.336	1.608	0.568	1.040	0.706	0.300
	2005	AT3	1.746	0.663	1.084	0.761	0.336	1.512	0.543	0.968	0.644	0.300
	2006	AT3	1.797	0.637	1.159	0.772	0.336	1.576	0.530	1.046	0.639	0.298
	2007	AT3	1.946	0.713	1.233	0.908	0.374	1.717	0.583	1.135	0.761	0.334
	2008	AT3	1.891	0.700	1.191	0.885	0.382	1.672	0.609	1.063	0.738	0.340
Belgium	2004	BE1	1.468	0.652	0.816	0.626	0.359	1.113	0.529	0.583	0.513	0.335
	2005	BE1	1.079	0.576	0.503	0.528	0.318	0.861	0.442	0.419	0.431	0.293
	2006	BE1	1.252	0.612	0.640	0.541	0.403	1.143	0.509	0.634	0.422	0.370
	2007	BE1	1.629	0.556	1.073	0.587	0.347	1.351	0.484	0.867	0.480	0.314
	2008	BE1	1.344	0.502	0.841	0.616	0.321	1.083	0.434	0.650	0.496	0.300
	2004	BE2	1.294	0.551	0.743	0.583	0.281	1.110	0.448	0.661	0.483	0.243
	2005	BE2	1.237	0.518	0.718	0.550	0.267	1.041	0.428	0.613	0.452	0.230
	2006	BE2	1.221	0.547	0.674	0.549	0.269	1.029	0.455	0.574	0.445	0.228
	2007	BE2	1.325	0.517	0.808	0.576	0.279	1.084	0.441	0.643	0.453	0.238
	2008	BE2	1.338	0.490	0.848	0.562	0.275	1.112	0.418	0.694	0.452	0.240
	2004	BE3	1.217	0.535	0.682	0.554	0.268	1.038	0.438	0.600	0.471	0.234
	2005	BE3	1.237	0.544	0.693	0.541	0.261	1.036	0.443	0.594	0.459	0.231
	2006	BE3	1.212	0.511	0.701	0.536	0.270	1.057	0.437	0.621	0.448	0.235
	2007	BE3	1.329	0.540	0.789	0.552	0.284	1.179	0.439	0.741	0.459	0.248
	2008	BE3	1.432	0.541	0.890	0.577	0.293	1.179	0.447	0.732	0.489	0.259
Germany	2005	DE1	1.997	0.570	1.427	0.934	0.340	1.869	0.589	1.280	0.929	0.331
	2006	DE1	2.464	0.667	1.797	1.243	0.384					
	2005	DE2	1.936	0.593	1.342	0.818	0.334	1.809	0.591	1.218	0.803	0.322
	2006	DE2	2.554	0.621	1.934	1.186	0.388					
	2005	DEA	2.023	0.533	1.490	0.873	0.332	1.892	0.558	1.334	0.842	0.327
	2006	DEA	2.357	0.564	1.793	1.125	0.364					
	2005	DECE	2.098	0.558	1.541	0.871	0.337	1.901	0.563	1.338	0.838	0.324
	2006	DECE	2.270	0.601	1.669	1.058	0.364					
	2005	DENE	1.869	0.602	1.267	0.790	0.323	1.624	0.534	1.090	0.696	0.302
	2006	DENE	2.369	0.637	1.731	1.019	0.373					
	2005	DENW	1.958	0.520	1.438	0.821	0.318	1.886	0.531	1.355	0.848	0.315
	2006	DENW	2.416	0.595	1.821	1.173	0.371					

Denmark	2004	DK0	1.203	0.475	0.728	0.473	0.254						
	2005	DK0	1.277	0.450	0.827	0.468	0.257						
	2006	DK0	1.254	0.451	0.803	0.471	0.255						
	2007	DK0	1.189	0.452	0.737	0.479	0.252						
	2008	DK0	1.224	0.484	0.740	0.489	0.260						
Spain	2004	ES11						1.699	0.654	1.045	0.665	0.304	
	2005	ES11						1.674	0.633	1.041	0.643	0.300	
	2006	ES11	1.565	0.706	0.859	0.691	0.324	1.468	0.669	0.799	0.582	0.295	
	2007	ES11	1.604	0.820	0.784	0.760	0.334	1.455	0.734	0.721	0.659	0.305	
	2008	ES11	1.555	0.632	0.923	0.654	0.312	1.460	0.629	0.832	0.551	0.288	
	2004	ES12						1.577	0.622	0.956	0.676	0.326	
	2005	ES12						1.371	0.557	0.813	0.666	0.297	
	2006	ES12	1.384	0.589	0.795	0.706	0.322	1.246	0.573	0.672	0.602	0.283	
	2007	ES12	1.749	0.724	1.025	0.719	0.325	1.655	0.642	1.013	0.606	0.300	
	2008	ES12	1.618	0.693	0.925	0.774	0.319	1.475	0.629	0.846	0.663	0.289	
	2004	ES13						1.528	0.676	0.852	0.598	0.309	
	2005	ES13						1.457	0.589	0.868	0.693	0.296	
	2006	ES13	1.698	0.727	0.970	0.907	0.368	1.620	0.773	0.847	0.783	0.339	
	2007	ES13	1.804	0.696	1.108	0.903	0.342	1.691	0.693	0.998	0.774	0.313	
	2008	ES13	1.513	0.666	0.847	0.825	0.329	1.304	0.611	0.693	0.721	0.298	
	2004	ES21						1.384	0.514	0.870	0.583	0.271	
	2005	ES21						1.372	0.539	0.833	0.560	0.263	
	2006	ES21	1.532	0.600	0.932	0.712	0.301	1.406	0.535	0.871	0.610	0.272	
	2007	ES21	1.602	0.691	0.912	0.760	0.322	1.430	0.631	0.799	0.661	0.294	
	2008	ES21	1.499	0.656	0.843	0.716	0.308	1.348	0.581	0.767	0.655	0.278	
	2004	ES22						1.329	0.566	0.763	0.570	0.271	
	2005	ES22						1.386	0.511	0.875	0.624	0.288	
	2006	ES22	1.719	0.588	1.131	0.768	0.328	1.569	0.539	1.030	0.707	0.305	
	2007	ES22	1.719	0.568	1.151	0.778	0.324	1.563	0.541	1.022	0.737	0.301	
	2008	ES22	1.563	0.633	0.931	0.738	0.305	1.445	0.547	0.898	0.660	0.282	
	2004	ES23						1.428	0.511	0.917	0.537	0.286	
	2005	ES23						1.204	0.480	0.724	0.523	0.254	
	2006	ES23	1.326	0.464	0.862	0.633	0.269	1.266	0.427	0.839	0.539	0.247	
	2007	ES23	1.290	0.517	0.773	0.580	0.269	1.121	0.452	0.669	0.500	0.246	
	2008	ES23	1.239	0.543	0.696	0.625	0.269	1.108	0.487	0.621	0.560	0.242	
	2004	ES24						1.511	0.594	0.917	0.693	0.292	
	2005	ES24						1.311	0.501	0.811	0.570	0.263	
	2006	ES24	1.504	0.619	0.884	0.714	0.291	1.435	0.588	0.847	0.632	0.273	
	2007	ES24	1.617	0.701	0.916	0.719	0.311	1.468	0.599	0.870	0.635	0.287	
	2008	ES24	1.513	0.632	0.881	0.708	0.293	1.386	0.598	0.788	0.643	0.272	
	2004	ES30						1.408	0.664	0.743	0.687	0.315	
	2005	ES30						1.467	0.673	0.794	0.684	0.309	
	2006	ES30	1.570	0.773	0.797	0.779	0.337	1.376	0.693	0.683	0.665	0.307	
	2007	ES30	1.638	0.766	0.872	0.730	0.335	1.452	0.667	0.785	0.648	0.308	
	2008	ES30	1.517	0.660	0.857	0.701	0.329	1.336	0.619	0.717	0.628	0.303	
	2004	ES41						1.496	0.582	0.914	0.643	0.289	
	2005	ES41						1.601	0.661	0.940	0.693	0.311	

2006	ES41	1.497	0.619	0.878	0.709	0.312	1.421	0.588	0.833	0.637	0.289
2007	ES41	1.531	0.664	0.867	0.727	0.318	1.496	0.631	0.865	0.641	0.296
2008	ES41	1.849	0.761	1.089	0.808	0.348	1.679	0.701	0.978	0.749	0.320
2004	ES42						1.427	0.509	0.918	0.503	0.276
2005	ES42						1.358	0.605	0.753	0.558	0.284
2006	ES42	1.664	0.736	0.928	0.690	0.330	1.454	0.622	0.832	0.571	0.299
2007	ES42	1.447	0.547	0.900	0.634	0.289	1.413	0.525	0.887	0.574	0.271
2008	ES42	1.425	0.619	0.806	0.562	0.286	1.356	0.588	0.768	0.489	0.267
2004	ES43						1.715	0.731	0.984	0.627	0.316
2005	ES43						1.946	0.694	1.252	0.916	0.362
2006	ES43	1.707	0.693	1.014	0.771	0.340	1.638	0.648	0.990	0.792	0.315
2007	ES43	1.983	0.819	1.165	0.769	0.356	1.897	0.717	1.180	0.709	0.331
2008	ES43	2.057	0.725	1.332	0.782	0.349	1.841	0.664	1.178	0.693	0.326
2004	ES51						1.570	0.654	0.916	0.687	0.321
2005	ES51						1.334	0.589	0.744	0.618	0.294
2006	ES51	1.487	0.658	0.829	0.662	0.313	1.307	0.600	0.707	0.616	0.283
2007	ES51	1.609	0.693	0.916	0.718	0.316	1.445	0.624	0.821	0.629	0.293
2008	ES51	1.468	0.636	0.832	0.626	0.299	1.373	0.609	0.764	0.560	0.274
2004	ES52						1.412	0.551	0.862	0.633	0.283
2005	ES52						1.455	0.606	0.849	0.596	0.278
2006	ES52	1.442	0.721	0.721	0.722	0.309	1.378	0.636	0.742	0.577	0.278
2007	ES52	1.547	0.733	0.814	0.726	0.311	1.435	0.639	0.796	0.619	0.284
2008	ES52	1.596	0.677	0.919	0.766	0.318	1.469	0.621	0.847	0.654	0.292
2004	ES53						1.494	0.706	0.788	0.664	0.307
2005	ES53						1.457	0.619	0.837	0.651	0.302
2006	ES53	1.553	0.681	0.871	0.706	0.330	1.472	0.642	0.830	0.688	0.299
2007	ES53	1.526	0.758	0.769	0.598	0.298	1.427	0.685	0.742	0.564	0.280
2008	ES53	1.608	0.756	0.852	0.681	0.296	1.386	0.667	0.719	0.587	0.275
2004	ES61						1.703	0.643	1.060	0.731	0.321
2005	ES61						1.650	0.637	1.013	0.718	0.315
2006	ES61	1.663	0.686	0.977	0.752	0.326	1.550	0.634	0.916	0.672	0.299
2007	ES61	1.807	0.719	1.087	0.741	0.340	1.723	0.662	1.061	0.656	0.313
2008	ES61	1.693	0.705	0.988	0.766	0.331	1.560	0.648	0.912	0.651	0.305
2004	ES62						1.580	0.550	1.031	0.693	0.297
2005	ES62						1.384	0.521	0.863	0.637	0.277
2006	ES62	1.409	0.566	0.843	0.586	0.268	1.253	0.511	0.742	0.490	0.239
2007	ES62	1.507	0.594	0.913	0.648	0.296	1.378	0.574	0.803	0.540	0.269
2008	ES62	1.359	0.580	0.779	0.534	0.277	1.204	0.539	0.665	0.474	0.257
2004	ES63						1.644	0.734	0.909	0.931	0.332
2005	ES63						1.440	0.687	0.753	0.620	0.293
2006	ES63	1.177	0.652	0.524	0.667	0.257	1.106	0.679	0.426	0.668	0.250
2007	ES63	1.341	0.603	0.738	0.595	0.255	1.253	0.573	0.680	0.602	0.245
2008	ES63	1.513	0.478	1.035	0.576	0.292	1.461	0.501	0.960	0.539	0.286
2006	ES64	1.675	0.662	1.013	0.792	0.309	1.615	0.639	0.977	0.760	0.301
2007	ES64	1.175	0.552	0.623	0.559	0.269	1.204	0.606	0.598	0.590	0.268
2008	ES64	1.954	0.624	1.330	0.734	0.324	1.915	0.679	1.236	0.766	0.326
2004	ES70						1.180	0.579	0.601	0.574	0.280

	2005	ES70						1.424	0.698	0.726	0.614	0.303
	2006	ES70	1.618	0.767	0.851	0.635	0.316	1.522	0.706	0.816	0.539	0.296
	2007	ES70	1.715	0.734	0.981	0.773	0.324	1.605	0.644	0.961	0.648	0.301
	2008	ES70	1.593	0.795	0.798	0.696	0.328	1.447	0.705	0.742	0.648	0.300
	2004	FI13	1.422	0.491	0.932	0.552	0.282					
	2005	FI13	1.397	0.472	0.925	0.473	0.266					
	2006	FI13	1.314	0.448	0.866	0.550	0.265					
	2007	FI13	1.405	0.469	0.937	0.555	0.265					
	2008	FI13	1.376	0.519	0.857	0.503	0.271					
	2004	FI18	1.317	0.572	0.744	0.546	0.284					
	2005	FI18	1.468	0.591	0.876	0.588	0.301					
	2006	FI18	1.514	0.618	0.896	0.611	0.319					
	2007	FI18	1.462	0.602	0.860	0.570	0.313					
Finland	2008	FI18	1.573	0.608	0.965	0.625	0.312					
	2004	FI19	1.322	0.519	0.803	0.516	0.268					
	2005	FI19	1.525	0.535	0.989	0.536	0.278					
	2006	FI19	1.448	0.562	0.886	0.544	0.278					
	2007	FI19	1.533	0.563	0.970	0.621	0.295					
	2008	FI19	1.556	0.550	1.006	0.620	0.296					
	2004	FI1A	1.455	0.517	0.938	0.534	0.269					
	2005	FI1A	1.517	0.519	0.998	0.620	0.276					
	2006	FI1A	1.532	0.535	0.998	0.577	0.290					
	2007	FI1A	1.608	0.544	1.064	0.585	0.287					
	2008	FI1A	1.426	0.563	0.863	0.615	0.289					
	2004	FR10	1.378	0.706	0.672	0.638	0.319	1.389	0.698	0.691	0.650	0.320
	2005	FR10	1.572	0.719	0.853	0.692	0.338	1.545	0.674	0.871	0.651	0.334
	2006	FR10	1.443	0.664	0.778	0.669	0.326	1.421	0.633	0.788	0.631	0.323
	2007	FR10	1.602	0.700	0.902	0.710	0.342	1.594	0.679	0.915	0.660	0.337
	2004	FR21	1.281	0.493	0.788	0.528	0.286	1.344	0.562	0.782	0.571	0.288
	2005	FR21	1.465	0.580	0.885	0.570	0.301	1.451	0.551	0.900	0.576	0.297
	2006	FR21	1.393	0.690	0.703	0.655	0.448	1.443	0.713	0.730	0.692	0.458
	2007	FR21	1.592	0.512	1.081	0.717	0.336	1.578	0.498	1.081	0.722	0.336
	2004	FR22	1.528	0.683	0.845	0.563	0.294	1.538	0.686	0.852	0.599	0.297
	2005	FR22	1.473	0.697	0.775	0.590	0.295	1.433	0.641	0.792	0.599	0.292
	2006	FR22	1.603	0.597	1.005	0.570	0.284	1.551	0.568	0.983	0.562	0.279
France	2007	FR22	1.529	0.489	1.040	0.718	0.288	1.512	0.502	1.010	0.712	0.284
	2004	FR23	1.432	0.690	0.741	0.629	0.421	1.376	0.679	0.697	0.628	0.432
	2005	FR23	1.711	0.708	1.003	0.578	0.329	1.685	0.681	1.004	0.590	0.328
	2006	FR23	1.459	0.598	0.861	0.533	0.374	1.454	0.593	0.861	0.542	0.383
	2007	FR23	1.545	0.676	0.869	0.631	0.327	1.510	0.618	0.892	0.630	0.326
	2004	FR24	1.242	0.537	0.706	0.578	0.294	1.273	0.540	0.733	0.568	0.297
	2005	FR24	1.412	0.539	0.873	0.537	0.288	1.438	0.551	0.886	0.549	0.288
	2006	FR24	1.287	0.577	0.710	0.496	0.291	1.295	0.560	0.735	0.482	0.290
	2007	FR24	1.372	0.610	0.762	0.517	0.289	1.369	0.589	0.780	0.528	0.289
	2004	FR25	1.727	0.679	1.048	0.599	0.322	1.726	0.708	1.018	0.641	0.326
	2005	FR25	1.121	0.370	0.751	0.436	0.265	1.186	0.435	0.751	0.462	0.265
	2006	FR25	1.300	0.555	0.744	0.533	0.288	1.227	0.516	0.711	0.549	0.285

2007	FR25	1.313	0.592	0.721	0.590	0.293	1.306	0.561	0.745	0.589	0.290
2004	FR26	1.550	0.594	0.956	0.590	0.292	1.570	0.581	0.989	0.635	0.295
2005	FR26	1.464	0.595	0.869	0.588	0.284	1.450	0.574	0.876	0.597	0.279
2006	FR26	1.464	0.631	0.833	0.497	0.283	1.453	0.612	0.841	0.493	0.278
2007	FR26	1.318	0.589	0.729	0.535	0.274	1.288	0.605	0.682	0.562	0.271
2004	FR30	1.524	0.543	0.981	0.560	0.345	1.553	0.564	0.989	0.569	0.352
2005	FR30	1.596	0.620	0.975	0.577	0.319	1.576	0.577	0.999	0.601	0.318
2006	FR30	1.711	0.617	1.094	0.588	0.318	1.672	0.580	1.092	0.605	0.317
2007	FR30	1.565	0.630	0.935	0.639	0.310	1.544	0.599	0.945	0.641	0.308
2004	FR41	1.411	0.465	0.946	0.590	0.289	1.404	0.453	0.951	0.583	0.291
2005	FR41	1.575	0.558	1.017	0.601	0.300	1.564	0.530	1.034	0.621	0.297
2006	FR41	1.339	0.500	0.839	0.571	0.293	1.331	0.468	0.862	0.596	0.289
2007	FR41	1.548	0.505	1.043	0.636	0.284	1.527	0.525	1.002	0.613	0.280
2004	FR42	1.488	0.573	0.915	0.588	0.297	1.504	0.568	0.935	0.618	0.299
2005	FR42	1.528	0.629	0.899	0.642	0.293	1.482	0.585	0.897	0.666	0.286
2006	FR42	1.483	0.599	0.884	0.627	0.306	1.447	0.556	0.890	0.628	0.299
2007	FR42	1.391	0.678	0.712	0.586	0.274	1.347	0.616	0.730	0.586	0.267
2004	FR43	1.406	0.542	0.865	0.526	0.272	1.462	0.572	0.890	0.565	0.275
2005	FR43	1.433	0.576	0.857	0.531	0.277	1.440	0.573	0.866	0.540	0.273
2006	FR43	1.550	0.548	1.002	0.434	0.264	1.489	0.477	1.012	0.456	0.259
2007	FR43	2.044	0.609	1.435	0.753	0.310	2.025	0.558	1.467	0.753	0.307
2004	FR51	1.371	0.615	0.756	0.525	0.298	1.405	0.629	0.776	0.543	0.303
2005	FR51	1.379	0.584	0.795	0.524	0.297	1.371	0.555	0.817	0.522	0.298
2006	FR51	1.353	0.576	0.777	0.483	0.291	1.363	0.575	0.788	0.489	0.290
2007	FR51	1.539	0.569	0.970	0.520	0.288	1.521	0.540	0.980	0.522	0.287
2004	FR52	1.403	0.593	0.810	0.658	0.293	1.452	0.639	0.813	0.699	0.297
2005	FR52	1.493	0.587	0.906	0.654	0.295	1.495	0.586	0.909	0.672	0.295
2006	FR52	1.718	0.592	1.126	0.560	0.305	1.711	0.569	1.142	0.569	0.306
2007	FR52	1.425	0.641	0.783	0.557	0.295	1.409	0.613	0.797	0.548	0.293
2004	FR53	1.518	0.522	0.997	0.565	0.284	1.526	0.584	0.942	0.585	0.289
2005	FR53	1.514	0.616	0.898	0.547	0.298	1.559	0.663	0.896	0.554	0.299
2006	FR53	1.412	0.631	0.781	0.477	0.290	1.463	0.630	0.833	0.503	0.291
2007	FR53	1.202	0.538	0.664	0.570	0.281	1.227	0.535	0.693	0.583	0.283
2004	FR61	1.488	0.564	0.924	0.603	0.306	1.522	0.578	0.943	0.606	0.310
2005	FR61	1.652	0.628	1.024	0.689	0.329	1.642	0.624	1.018	0.655	0.328
2006	FR61	1.749	0.642	1.108	0.621	0.334	1.749	0.640	1.110	0.650	0.333
2007	FR61	1.584	0.628	0.955	0.575	0.307	1.569	0.611	0.958	0.614	0.306
2004	FR62	1.366	0.659	0.708	0.596	0.304	1.386	0.618	0.768	0.633	0.307
2005	FR62	1.464	0.693	0.771	0.624	0.351	1.447	0.645	0.803	0.637	0.351
2006	FR62	1.580	0.731	0.848	0.680	0.316	1.604	0.760	0.844	0.689	0.314
2007	FR62	1.434	0.808	0.626	0.597	0.322	1.421	0.779	0.643	0.628	0.320
2004	FR63	1.541	0.540	1.001	0.540	0.303	1.599	0.592	1.007	0.600	0.312
2005	FR63	1.484	0.411	1.073	0.671	0.291	1.561	0.488	1.072	0.639	0.292
2006	FR63	1.417	0.398	1.019	0.483	0.282	1.473	0.458	1.015	0.526	0.282
2007	FR63	1.327	0.443	0.885	0.568	0.258	1.344	0.426	0.919	0.568	0.257
2004	FR71	1.502	0.606	0.896	0.618	0.309	1.515	0.608	0.908	0.622	0.311
2005	FR71	1.539	0.671	0.868	0.610	0.339	1.489	0.628	0.861	0.640	0.337

	2006	FR71	1.519	0.660	0.859	0.648	0.344	1.488	0.615	0.872	0.659	0.340
	2007	FR71	1.489	0.643	0.847	0.588	0.315	1.467	0.614	0.854	0.596	0.310
	2004	FR72	1.625	0.653	0.972	0.547	0.335	1.649	0.657	0.993	0.588	0.339
	2005	FR72	1.511	0.626	0.885	0.555	0.304	1.547	0.632	0.915	0.611	0.306
	2006	FR72	1.623	0.650	0.973	0.648	0.332	1.583	0.590	0.994	0.690	0.332
	2007	FR72	1.193	0.406	0.786	0.554	0.255	1.261	0.463	0.798	0.593	0.257
	2004	FR81	1.413	0.639	0.774	0.519	0.313	1.457	0.670	0.787	0.533	0.317
	2005	FR81	1.728	0.574	1.154	0.572	0.322	1.771	0.603	1.169	0.597	0.324
	2006	FR81	1.578	0.588	0.990	0.629	0.316	1.564	0.544	1.020	0.593	0.316
	2007	FR81	1.944	0.608	1.335	0.797	0.353	1.945	0.578	1.367	0.823	0.354
	2004	FR82	1.287	0.557	0.730	0.596	0.304	1.323	0.593	0.730	0.611	0.309
	2005	FR82	1.354	0.622	0.732	0.573	0.301	1.391	0.618	0.773	0.606	0.301
	2006	FR82	1.341	0.582	0.760	0.547	0.284	1.371	0.599	0.772	0.540	0.283
	2007	FR82	1.473	0.613	0.859	0.648	0.303	1.472	0.576	0.896	0.647	0.301
	2004	FR83	0.766	0.412	0.354	0.467	0.175	0.815	0.490	0.325	0.521	0.184
	2005	FR83	0.897	0.599	0.299	0.451	0.148	0.923	0.627	0.296	0.502	0.153
	2006	FR83	0.736	0.613	0.124	0.396	0.267	0.802	0.613	0.190	0.462	0.266
	2007	FR83	1.028	0.397	0.631	0.406	0.231	1.096	0.397	0.700	0.474	0.242
	2004	GR1						1.434	0.475	0.959	0.706	0.281
	2005	GR1						1.386	0.525	0.861	0.708	0.299
	2006	GR1						1.588	0.526	1.062	0.767	0.303
	2007	GR1	1.849	0.775	1.074	0.889	0.360	1.614	0.565	1.049	0.740	0.305
	2008	GR1	1.793	0.699	1.094	0.931	0.353	1.577	0.549	1.028	0.778	0.302
	2004	GR2						1.386	0.425	0.961	0.680	0.297
	2005	GR2						1.448	0.511	0.937	0.678	0.269
	2006	GR2						1.470	0.574	0.895	0.697	0.284
	2007	GR2	1.657	0.767	0.890	0.799	0.340	1.435	0.560	0.875	0.675	0.284
GREECE	2008	GR2	1.674	0.733	0.941	0.770	0.350	1.436	0.551	0.885	0.664	0.294
	2004	GR3						1.247	0.583	0.663	0.644	0.292
	2005	GR3						1.344	0.571	0.773	0.609	0.292
	2006	GR3						1.395	0.572	0.824	0.619	0.285
	2007	GR3	1.546	0.762	0.784	0.808	0.357	1.273	0.580	0.693	0.642	0.292
	2008	GR3	1.521	0.722	0.800	0.782	0.351	1.274	0.565	0.709	0.616	0.290
	2004	GR4						1.435	0.523	0.912	0.778	0.287
	2005	GR4						1.621	0.571	1.050	0.878	0.314
	2006	GR4						1.493	0.511	0.982	0.902	0.311
	2007	GR4	1.727	0.744	0.983	1.003	0.366	1.565	0.580	0.985	0.873	0.313
	2008	GR4	1.596	0.721	0.875	0.936	0.352	1.347	0.549	0.798	0.770	0.299
	2004	IE0	1.958	0.790	1.168	0.879	0.370	1.668	0.635	1.033	0.732	0.317
	2005	IE0	2.037	0.794	1.243	0.968	0.385	1.756	0.640	1.116	0.791	0.334
IRELAND	2006	IE0	2.131	0.840	1.291	1.055	0.395	1.826	0.679	1.147	0.869	0.340
	2007	IE0	2.219	0.879	1.340	1.088	0.406	1.918	0.688	1.230	0.908	0.352
	2008	IE0	2.106	0.846	1.260	1.061	0.398	1.829	0.681	1.148	0.899	0.342
	2004	ITC						1.091	0.501	0.591	0.472	0.261
ITALY	2005	ITC						1.101	0.534	0.567	0.473	0.261
	2006	ITC						1.081	0.532	0.550	0.476	0.259

	2007	ITC	1.314	0.615	0.699	0.562	0.308	1.108	0.522	0.586	0.477	0.262
	2008	ITC	1.236	0.575	0.661	0.524	0.283	1.034	0.478	0.556	0.446	0.239
	2004	ITD						1.153	0.490	0.663	0.473	0.258
	2005	ITD						1.055	0.494	0.561	0.478	0.246
	2006	ITD						1.081	0.491	0.591	0.463	0.252
	2007	ITD	1.283	0.577	0.706	0.570	0.290	1.062	0.490	0.572	0.495	0.250
	2008	ITD	1.268	0.561	0.707	0.540	0.273	1.053	0.473	0.580	0.464	0.236
	2004	ITE						1.183	0.517	0.666	0.501	0.272
	2005	ITE						1.146	0.519	0.628	0.504	0.265
	2006	ITE						1.166	0.547	0.619	0.512	0.267
	2007	ITE	1.393	0.612	0.781	0.634	0.307	1.183	0.521	0.663	0.534	0.265
	2008	ITE	1.330	0.605	0.725	0.610	0.294	1.138	0.504	0.634	0.535	0.251
	2004	ITF						1.438	0.509	0.929	0.618	0.288
	2005	ITF						1.428	0.500	0.928	0.603	0.280
	2006	ITF						1.398	0.491	0.907	0.549	0.278
	2007	ITF	1.601	0.592	1.009	0.713	0.317	1.405	0.496	0.910	0.584	0.278
	2008	ITF	1.460	0.552	0.908	0.624	0.302	1.260	0.442	0.818	0.545	0.261
	2004	ITG						1.484	0.540	0.944	0.652	0.312
	2005	ITG						1.524	0.520	1.004	0.680	0.306
	2006	ITG						1.298	0.548	0.750	0.592	0.284
	2007	ITG	1.582	0.664	0.918	0.760	0.328	1.451	0.564	0.887	0.634	0.285
	2008	ITG	1.497	0.546	0.951	0.668	0.316	1.312	0.481	0.830	0.573	0.276
	2005	NL	1.567	0.590	0.977	0.663	0.327					
Netherlands	2006	NL	1.837	0.662	1.175	0.859	0.356					
	2007	NL	1.841	0.660	1.181	0.843	0.355					
	2008	NL	1.805	0.629	1.177	0.806	0.350					
	2004	NO0	1.369	0.505	0.864	0.563	0.283					
	2005	NO0	1.496	0.516	0.980	0.633	0.295					
Norway	2006	NO0	1.552	0.527	1.025	0.625	0.300					
	2007	NO0	1.552	0.540	1.012	0.644	0.307					
	2008	NO0	1.545	0.547	0.998	0.645	0.319					
	2005	UK	1.862	0.773	1.089	0.872	0.386	1.631	0.715	0.917	0.757	0.348
UK	2006	UK	1.865	0.777	1.087	0.867	0.375	1.620	0.693	0.927	0.744	0.336
	2007	UK	1.851	0.783	1.068	0.877	0.379					
	2008	UK	1.914	0.817	1.097	0.886	0.408					
	2004	PT						1.585	0.953	0.632	0.780	0.382
Portugal	2005	PT						1.567	0.964	0.604	0.762	0.387
	2006	PT						1.482	0.941	0.541	0.737	0.372
	2007	PT	1.699	1.080	0.620	0.854	0.421	1.446	0.887	0.559	0.722	0.361
	2008	PT	1.636	0.965	0.670	0.832	0.397	1.414	0.805	0.609	0.713	0.341
	2004	SE	1.596	0.525	1.071	0.580	0.299	1.475	0.449	1.026	0.549	0.270
Sweden	2005	SE	1.574	0.519	1.055	0.584	0.304	1.430	0.439	0.991	0.547	0.271
	2006	SE	1.641	0.507	1.134	0.613	0.302	1.500	0.432	1.068	0.569	0.271
	2007	SE	1.625	0.508	1.117	0.622	0.304	1.476	0.423	1.053	0.583	0.272
	2008	SE	1.596	0.499	1.097	0.594	0.298	1.426	0.405	1.022	0.546	0.262

The table reports for each country regional indices of inequality based on gross income, (left panel) and net income (right panel) by year. Column 3 reports the regional identifier, based on the NUTS nomenclature. For each country we report the highest level of geographic detail available in EU-SILC.
log 90/10 is the logarithm of the ratio of the 90th to the 10th income percentile, log 90/50 is the logarithm of the ratio of the 90th to the 50th income percentile, log 50/10 is the logarithm of the ratio of the 50th to the 10th income percentile, log 75/25 is the logarithm of the ratio of the 90th to the 10th income percentile, Gini is the logarithm of the ratio of the 90th to the 10th income percentile

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Information on the GINI project

Aims

The core objective of GINI is to deliver important new answers to questions of great interest to European societies: What are the social, cultural and political impacts that increasing inequalities in income, wealth and education may have? For the answers, GINI combines an interdisciplinary analysis that draws on economics, sociology, political science and health studies, with improved methodologies, uniform measurement, wide country coverage, a clear policy dimension and broad dissemination.

Methodologically, GINI aims to:

- exploit differences between and within 29 countries in inequality levels and trends for understanding the impacts and teasing out implications for policy and institutions,
- elaborate on the effects of both individual distributional positions and aggregate inequalities, and
- allow for feedback from impacts to inequality in a two-way causality approach.

The project operates in a framework of policy-oriented debate and international comparisons across all EU countries (except Cyprus and Malta), the USA, Japan, Canada and Australia.

Inequality Impacts and Analysis

Social impacts of inequality include educational access and achievement, individual employment opportunities and labour market behaviour, household joblessness, living standards and deprivation, family and household formation/breakdown, housing and intergenerational social mobility, individual health and life expectancy, and social cohesion versus polarisation. Underlying long-term trends, the economic cycle and the current financial and economic crisis will be incorporated. Politico-cultural impacts investigated are: Do increasing income/educational inequalities widen cultural and political 'distances', alienating people from politics, globalisation and European integration? Do they affect individuals' participation and general social trust? Is acceptance of inequality and policies of redistribution affected by inequality itself? What effects do political systems (coalitions/winner-takes-all) have? Finally, it focuses on costs and benefi ts of policies limiting income inequality and its effi ciency for mitigating other inequalities (health, housing, education and opportunity), and addresses the question what contributions policy making itself may have made to the growth of inequalities.

Support and Activities

The project receives EU research support to the amount of Euro 2.7 million. The work will result in four main reports and a final report, some 70 discussion papers and 29 country reports. The start of the project is 1 February 2010 for a three-year period. Detailed information can be found on the website.

www.gini-research.org

GINI GROWING INEQUALITIES' IMPACTS

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