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**Working Paper**

## Not just a work permit: EU citizenship and the consumption behavior of documented and undocumented immigrants

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# Not Just a Work Permit: EU Citizenship and the Consumption Behavior of Documented and Undocumented Immigrants\*

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## Abstract

This paper explores the impact of the 2007 European Union enlargement on the consumption behavior of immigrant households. Using data from a unique Italian survey and a difference-in-differences approach, we find that the enlargement induced a significant consumption increase for the immigrant households from new member states both in the short- and in the medium-run. This enlargement effect cannot be attributed to the mere legalization as it concerns both undocumented and documented immigrants, albeit through different channels. Detailed information on immigrants' legal status (undocumented/documented) and sector of employment (informal/formal) allows us to shed light on the exact mechanisms. Following the enlargement, previously undocumented immigrants experienced an increase in the labor income by moving from the informal towards the formal economy, whereas immigrants who were already working legally in Italy benefitted from the increased probability of getting a permanent contract. Enhanced employment stability in turn reduced the uncertainty about future labor income leading to an increase in documented immigrants' consumption expenditure.

JEL classifications: D12, E21, F22

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## 1 Introduction

Despite the large literature on the economic analysis of immigration, little is known about immigrant households' consumption behaviour in the host economy. In principle, a high level of uncertainty can depress the economic activity of households, including their consumption. When economic decisions are costly to revert, high uncertainty may induce individuals to postpone their decisions until uncertainty is sufficiently resolved and more information is available (Bernanke, 1983). Immigrants tend to face higher economic uncertainty than natives, which may affect their consumption behavior.<sup>1</sup> On the one hand, undocumented immigrants are constantly at risk of being apprehended and subsequently deported, and when employed, they work in the informal economy and earn lower salaries (Dell'Aringa and Neri, 1987). Legalization procedures differ by country but are costly and burdensome in general.<sup>2</sup> On the other hand, documented immigrants are allowed to stay in the host country for a prespecified period of time and are obliged to leave when their permit expires. Permits can be renewable but this is usually subject to fulfilling certain conditions such as earning high-enough income and/or not entailing in any criminal activity.

One of the fundamental principles of the European Union (EU) enables immigrants from the member states to live and work in the EU without the need of a work permit, and grants them the right to equal treatment with natives in employment, wages, and working conditions.<sup>3</sup> Thus, the EU accession plausibly implies an improvement in the employment opportunities of citizens from new member states, while reducing the degree of uncertainty and the precautionary savings motive. This could translate into higher income, and thus into an increase in consumption, in particular among the undocumented immigrants, who could now move into the formal sector. In the case of documented immigrants, the reduced labor market uncertainty coupled with a higher probability of getting a permanent contract may also boost household consumption expenditure.<sup>4</sup> As a result, extending citizenship

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<sup>1</sup>Dustmann (1997) develops a model of return migration and shows that in fact immigrants may engage in more precautionary savings due to higher income uncertainty.

<sup>2</sup>For instance, in the case of Italy, they involve finding a sponsoring employer and their success probability is subject to yearly quotas.

<sup>3</sup>Article 45 Treaty on the Functioning of the European Union (ex 39 and 48).

<sup>4</sup>See Campos and Reggio (2015) for the relationship between labor market uncertainty and consumption and Barceló and Villanueva (2016) for the effect of permanent contracts on household consumption and wealth accumulation.

rights might have an important impact on domestic demand. Despite its relevance, the link between citizenship and consumption has been largely overlooked empirically. Using data from a unique survey in Italy and employing a difference-in-differences approach, we study whether and through which channels the extension of EU citizenship affected the consumption behavior of immigrant households following the 2007 enlargement. In our research design, we restrict our sample to immigrants who arrived in Italy before 2007 and compare the monthly consumption of households from new member states (Romania and Bulgaria) and candidate countries (Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia and Turkey), before and after the enlargement.<sup>5,6</sup> We test the validity of our identification strategy by addressing anticipation and composition effects as well as spillover effects by using immigrants from A8 countries as an alternative control group and by exploiting heterogeneity across regions and occupations.<sup>7</sup> Italy provides an ideal context to study the effects of the 2007 enlargement as it has long been one of the main destinations for both Romanians and Bulgarians, even before 2007. Moreover, although the EU accession of Romania and Bulgaria was an expected event, its labor market consequences in Italy were not, and the EU accession implied for Romanians and Bulgarians full rights to work (see Section 3 for a detailed discussion).

Our unique dataset allows us to focus both on documented immigrants, for whom citizenship mainly implies that they do not need to renew their permits any more, and on undocumented immigrants, who benefitted from legalization. Furthermore, detailed information on labor market outcomes, including the sector of employment (informal/formal), allows us to shed light on the exact mechanisms. We find that the EU accession significantly increased average monthly consumption of immigrant households in the year of accession, but also a few years later, in line with the presence of liquidity constraints. The increase in consumption involved both undocumented and documented immigrants albeit through different channels. Specifically, the former increased their expenditure on food, clothes, and other basic-need items due to increased labor income. We provide evidence that this was mainly achieved by moving from the informal towards the formal sector. Documented immigrants instead, increased mostly the consumption of durable goods. In their case, the

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<sup>5</sup>A similar identification strategy has been adopted by recent papers that study the labor market effects of the 2004 enlargement (see Elsner, 2013a and 2013b; Ruhs, 2017; and Ruhs and Wadsworth, 2018).

<sup>6</sup>Although Iceland is among the candidate countries, their nationals can work in Italy as well as in other EU countries on the same footing as EU nationals, since they belong to the European Economic Area. Therefore, we do not consider Icelanders as part of our control group.

<sup>7</sup>A8 countries are Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia, which joined the EU in 2004.

underlying mechanism is a gradual increase in employment stability through permanent job contracts, which reduces the uncertainty about future labor income and thus, increases the propensity to consume.<sup>8</sup> At the same time, the probability of holding savings and remitting goes down, consistent with a reduced precautionary savings motive.<sup>9</sup> While legalization policies are usually difficult to implement due to the high political cost entailed, our results imply that simplifying instead the bureaucratic procedure of work permits for documented immigrants may lead to similar consumption increases. The labor market channel that our analysis highlights is in line with Mastrobuoni and Pinotti (2015), who exploit the same natural experiment and find that immigrant crime decreases due to increased employment opportunities.

The literature on the consumption behavior of both documented and undocumented immigrants is scarce mainly due to data limitations. Two recent exceptions, exploiting the same dataset that we use, are Dustmann et al. (2017) and Barigozzi and Speciale (2011). Dustmann et al. (2017) use amnesty quotas to analyze the effect of immigrants' legal status on their consumption behavior in Italy and find that undocumented immigrants consume about 40% less than documented immigrants and that this is partly due to their lower income. In our analysis we highlight an additional channel, that is the increased probability of getting a permanent contract for immigrants that were documented even before their home country accessed the EU. In the new legal framework, work permits of citizens from new member countries were no longer of limited duration, which plausibly made firms more willing to offer them permanent contracts. Enhanced labor stability in turn decreases the uncertainty about future labor income, and thus increases the propensity to consume. Barigozzi and Speciale (2011) also focus on Italy and study the differences in the consumption behavior of natives, documented and undocumented immigrants. They find that the permanence in the host country plays an important role in attenuating these differences. In our empirical exercise we control for years of residence and we show that the immigrants that benefitted most from the EU enlargement were those with less than 5 years of residence in Italy, who were not eligible for permanent residence permits. Moreover, in a placebo exercise we find no effect among immigrants who held or were eligible to apply for

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<sup>8</sup>We complement our findings with additional evidence from Social Security records that point to the same direction.

<sup>9</sup>According to the literature, one of the reason why immigrants remit is to insure themselves against risk. Amuedo-Dorantes and Pozo (2006) show that remittances act as a form of family-provided insurance and self insurance. Delpierre and Verheyden (2014) develop a model with endogenous remittances, savings, and return decisions under uncertainty and show that when migrants face relatively low wage risks in the host country, they tend to remit less.

the Italian citizenship.

Our findings also contribute to a very recent literature that studies the labor market effects of faster access to citizenship as well as of different asylum policies. This strand of the literature suggests that faster access to citizenship improves the labor market attachment of female immigrants and their investment in host country-specific skills (Gathmann and Keller, 2018). Similarly, higher recognition and decision rates boost the employment prospects and the economic integration of refugees (Fasani et al., 2018), while a lengthy period before obtaining the right to work seem to hamper them (Ballatore et al., 2017). We also explore alternative explanations, such as easier access to credit, but the labor market channel remains the most plausible underlying mechanism.

The paper is organized as follows. The next section provides a brief description of the Italian labor market in the context of immigration and of the legal framework regarding immigrants. Section 3 describes the natural experiment we exploit in our analysis. Section 4 presents the data, sample and identification strategy and Section 5 outlines the empirical approach and presents the main results. Section 6 explores possible underlying mechanisms while Section 7 performs a series of robustness checks and discusses alternative channels. Finally, Section 8 concludes.

## 2 Background

Immigration is considered to be a structural characteristic of the Italian society and labor market (Quassoli, 1999). The empirical evidence shows that the demand for immigrant workers in Italian labor market is mainly concentrated on unskilled jobs (Fullin and Reyneri, 2011) and compared to employed Italians, immigrant workers are more likely to be employed in sectors with low-pay, high job instability, and weak employment protection (Ambrosini and Barone, 2007). Immigrant workers are also more exposed than natives to temporary employment contracts (Barone, 2009), which are consistently found to be associated with lower job satisfaction and greater difficulty in balancing work and family, and provide less opportunities for work-related training and career advancement opportunities compared to permanent contracts (see, for example, Bentolila and Dolado, 1994; Blanchard and Landier, 2002; Bonet et al., 2013; Booth et al., 2002; Dolado et al., 2002).<sup>10</sup>

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<sup>10</sup>In the late 1980s, Italy was considered to have one of the strictest labor markets in terms of employment protection legislation (OECD, 2004). To provide more flexibility to employers, Italy relaxed the rules for the use of temporary contracts in 1987, which, prior to this year, could only be used for seasonal work,

In relation to the legal framework for immigration, Italy offers various types of residence permits, including those granted for work reasons, which can be either temporary and need to be renewed in certain intervals (*permesso di soggiorno*) or permanent (*carta di soggiorno*).<sup>11</sup> Residence permits for work reasons are subject to quotas set by the government each year for different categories of immigrant workers (see, for a discussion, Pinotti, 2017).<sup>12</sup> The type of employment contract has a direct effect on the frequency that residence permits need to be renewed. The temporary residence permit for work reasons has a validity of two years for immigrants working under an open-ended (permanent) contract and a validity of one year for those with fixed-term (temporary) contracts. Immigrants become eligible for a permanent permit of unlimited duration after five years of legal residence in Italy and the successful completion of an Italian language test.

Despite its comprehensive legal framework, as of January 2018, there were an estimated 533,000 undocumented immigrants in Italy (ISMU, 2018). Undocumented immigrants either enter the country without a permit or they enter on short-term visas (e.g. tourist or student visa) and then overstay despite having their documents expired (Fasani, 2015; Fullin and Reyneri, 2011). They tend to choose countries where it is easy for them to work for a period, even without a work permit, which they might obtain subsequently through regularization programmes or by finding an employer in the formal sector to sponsor them (Levinson, 2005). Although the immigrants' legal status (documented/undocumented) and sector of employment (formal/informal) are not necessarily reciprocal, the relatively large informal economy in Italy has been a major factor in promoting undocumented immigration (Reyneri, 1998).<sup>13</sup> The findings of recent studies suggest that once undocumented immigrants are regularized, the majority move to the formal sector (Fullin and Reyneri, 2011) and stay in it (Di Porto et al., 2018). Overall, the evidence consistently shows that, all else equal, undocumented immigrants have worse labor market outcomes than documented immigrants (see, for example, Amuedo-Dorantes et al., 2007; Borjas and Tienda, 1993; Fasani,

specific projects or for replacement of absent workers temporarily (Kugler and Pica, 2008). Since then, temporary contracts steadily increased as a share of total employment (Cappellari et al., 2012). In the period of our analysis (2001-2012) around 13% of the workforce was under temporary employment contracts (Istat, Labour Force Survey). While the extended use of temporary contracts allowed for more flexibility in the labor market, large differences in terms of employment protection legislation between permanent and temporary contracts have been a concern (Garibaldi and Taddei, 2013).

<sup>11</sup> Other types include those granted for family reasons (e.g. spouse or dependent child of a legal resident) and special permits for study purposes and permits for asylum seekers/humanitarian reasons.

<sup>12</sup> Immigrants can be sponsored for two main types of permits: type-A permits for domestic and care workers employed by families and type-B permits for workers employed by firms. The latter are further distinguished between B1 and B2 permits for construction and non-construction workers.

<sup>13</sup> A unique feature of our data is that we can observe both undocumented/documentated immigrants working in the informal/formal sector. In our sample, all undocumented immigrants but also 14% of the documented immigrants work in the informal sector.



2015; Guriev et al., 2019; Kaushal; 2006; Kossoudji and Cobb-Clark, 2002).

### 3 The Natural Experiment

Bulgaria and Romania joined the EU on January 1, 2007.<sup>14</sup> In fact, the EU accession of Romania and Bulgaria was an expected event as the accession negotiations were successfully concluded in 2004. However, the accession treaties allowed member states to impose temporal labor market restrictions on Bulgarian and Romanian workers for up to seven years after accession. All EU states were required to open their labor markets to the citizens of the two newest members by the end of 2013, but they had to give justification if they wished to restrict access beyond 2011.<sup>15</sup> The majority of member states, including Italy, announced that would impose interim restrictions to protect their labor markets from a large flow of immigrants from the new member states and therefore Romanian and Bulgarian immigrants would still be required to have a permit in order to work.<sup>16</sup>

However, just three days prior to the EU accession, on December 28, 2006, the newly-elected, center-left government in Italy lifted the restrictions for high skilled employment as well as in sectors where the vast majority of Romanian and Bulgarian immigrants used to work, such as construction, hotel and tourism, domestic work, care services, agriculture, engineering and seasonal work. In these sectors, employers of Bulgarian and Romanian workers simply needed to submit a copy of the employment contract to the local labor office. Migration quotas were maintained only in the manufacturing sector but were eased so as to accommodate a larger number of workers from the new member states.<sup>17</sup> As a result, in 2007, Italy was the only major economy in Europe to lift restrictions on workers from Romania and Bulgaria, granting them in practise full rights to work in Italy.<sup>18</sup> Not

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<sup>14</sup>Following the EU enlargement in 2007, Romanian and Bulgarian immigrants in Italy were instantly granted with the EU citizenship and became documented without the need of obtaining/renewing any residence permit.

<sup>15</sup>Some member states, that had imposed interim labour market restrictions in 2007, lifted them in advance of this deadline. Denmark, Greece, Portugal, Ireland and Hungary opened their labor markets to arrivals from Bulgaria and Romania before the end of the transitory period, while the UK, Germany, Austria, France, Belgium, the Netherlands, Malta and Luxembourg maintained restrictions for the maximum period.

<sup>16</sup>Note that work permits were not transferable across member states. Therefore, Romanian and Bulgarians citizens, who were legally working in one of the member states at the date of accession and had a work permit for 12 months or longer, would have direct access to the labor market of that member state but not automatically to the labor markets of other member states. If they voluntarily left the labour market of the host member state, they would lose the right of access to the labor market of that state. These interim restrictions only applied to access to the labour market by workers and not to the free provision of services nor to the freedom of establishment, students, tourists, pensioners, etc.

<sup>17</sup>Italy fully liberalised its labor market for citizens of Romania and Bulgaria as of 1 January 2012.

<sup>18</sup>See Migration Advisory Committee Report (2008) and House of Commons Home Affairs Committee Report (2007). See also Mastrobuoni and Pinotti (2015) for a similar discussion.

surprisingly, the number of Romanian and Bulgarian residents in Italy has almost doubled between 2006 and 2007.<sup>19</sup>

The other countries that opened immediately their labor markets to the citizens of the new member states were Finland and Sweden, as well as the majority of member states that joined the EU in 2004: Cyprus, the Czech Republic, Estonia, Latvia, Lithuania, Poland, Slovakia and Slovenia. Nevertheless, among all, Italy was the only country that had long been the main destination for both Romanians and Bulgarians, even before the EU enlargement in 2007 (European Commission, 2008). Spain, the other most preferred destination for Romanians and Bulgarians, maintained restrictions until January 2009 and reintroduced them again, for workers from Romania in July 2011 until the end of 2013. Figure A1 in the Appendix summarizes the timing of the events.

## 4 Data and Identification

### 4.1 The ISMU data

Our main data source is an annual survey launched in 2001 by a non-governmental organization, the Foundation for Initiatives and Studies on Multi-Ethnicity (ISMU) to study the foreign population residing in the Lombardy region of Italy. Each survey consists of a random sample of about 8,000 immigrants (repeated cross section), who are aged 15 and over and reside in Italy at the time of the interview. A unique feature of the ISMU survey is that its sampling scheme was specifically designed to collect information on a representative sample of both documented and undocumented immigrants (see Data Section in the Appendix). In order to obtain truthful answers from the respondents on legal status and informal employment, no sensitive information is asked (e.g. name and address) and the data are collected in public spaces by interviewers with a foreign background, who have undergone specific training, and emphasize the independence of ISMU from the government at the beginning of the interview (see Dustmann et al., 2017; Guriev et al., 2019).

The ISMU data include rich information on personal characteristics such as age, gender, education, marital status, country of origin, years of residence in Italy, residence permit as well as employment status and labor income.<sup>20</sup> Information on the residence permits allows

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<sup>19</sup>See Italian National Institute of Statistics at <http://demo.istat.it/archivio.html>.

<sup>20</sup>The country of origin refers to the individual respondent rather than the whole household. We check the sensitivity of our results to the definition of immigrant households by restricting the sample to immigrants who are living with a partner from the same country of origin or singles/not living with a partner (see

us to identify the legal status of the respondents. In particular, we consider immigrants as documented if they reported to have a valid residence permit (permanent or temporary) at the time of the interview. Employed respondents were also asked about their labor income, type of employment contract and occupation, and importantly for our analysis, whether they work in the formal or in the informal sector.

As the statistical unit of analysis in the ISMU surveys is the individual, information on the family is limited and therefore we do not observe household income, employment and labor income of the spouse. Nevertheless, there is available information on the number of household members living with the respondent, the number of children (living with the respondent in Italy and abroad), marital status, and (for the married respondents) on whether the spouse is living with the respondent or abroad, as well as on whether the respondent is living in own property. More importantly, from 2004 to 2012, respondents were asked questions about their household consumption expenditure. In particular, the respondents had to report in euros their average household’s monthly expenditure in Italy within the year of the interview on three broad categories of consumption: (i) food, clothes, and basic needs; (ii) housing such as rent, mortgage, maintenance, bills; and (iii) other items such as transportation, leisure, installment purchases and debt.<sup>21</sup> Our main dependent variable is the total consumption of immigrant households in the host country, i.e. the sum of these three types of consumption expenditure, but we also explore each of the disaggregated consumption categories separately. In our benchmark estimates, we use the average monthly household consumption controlling for the number of household members and cohabiting children as well as the total number of children (cohabiting or not) and whether the spouse lives with the respondent or abroad. We also check the sensitivity of our main results using equalized consumption (see Section 7). Respondents were also asked to report in euros their average monthly remittances as well as their monthly savings in Italy. Information on monthly remittances is likely to be subject to measurement error while there is no information on savings held in the home country (see Dustmann et al., 2017 for a further discussion). Moreover, many respondents report zero monthly remittances and/or savings. Therefore, in Section 6 we adopt a linear probability model as well as a model that takes censoring at zero into account to study the effect both on the extensive and the intensive margin of savings and remittances. Nevertheless, these results should be interpreted with

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Section 7).

<sup>21</sup>Throughout the paper, we use the term ‘durables’ to refer to the latter as it is likely to include large and long-term purchases such as cars or home appliances that are usually bought in installments.

caution due to the measurement of these variables in the ISMU survey.

Two factors should be mentioned before going ahead. First, the ISMU survey concerns only the Lombardy region of Italy. However, Lombardy can be considered as a good approximation of the whole country as it is the most populated and one of the largest and wealthiest regions of Italy, and has the largest migrant population in the country accounting for 25% of the total (IReR, 2010).<sup>22</sup> Second, due to the cross-sectional nature of the survey, we are not able to trace the same individuals over time. Still, we are able to recover some retrospective information on whether respondents in our sample were documented and working in the formal sector before the EU enlargement. In particular, given that there was no need of obtaining/renewing the work permit in 2007 among the treated, we can infer that those with a valid work permit in 2007 had obtained it beforehand. Moreover, we use the Social Security records, that allow us to follow individuals over time, obtaining some additional evidence regarding the labor market outcomes (wages and type of contract).

## 4.2 Sample and identification

In our analysis we use all nine waves (2004-2012) of the ISMU data that include information on average monthly household expenditure to explore the impact of the EU enlargement on the consumption of immigrant households from new member states. Our treatment group consists of Romanians and Bulgarians. A natural control group for new EU member countries is the EU candidate member countries as they should be comparable on the basis of the political and economic conditions (Mastrobuoni and Pinotti, 2015). Moreover, their attitudes towards risk should be similar to those of Romanians and Bulgarians given their common migration choices.<sup>23</sup> Therefore, immigrants from Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, and Turkey constitute our control group.<sup>24</sup>

Since Italy experienced an expansion of migration from Romania and Bulgaria following their accession to the EU, the causal effect of the EU enlargement on the consumption of immigrant households would be contaminated by the different selection of new immigrants following the EU accession. To address this issue, we restrict our sample to immigrants

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<sup>22</sup>See Appendix Figure A2 for a map of Lombardy in Italy/Europe and its 11 (12 since 2009) provinces.

<sup>23</sup>There is a growing body of empirical literature supporting the existence of a relationship between the migration decision and attitudes towards risk. See, for example, Bonin et al. (2009) and Jaeger et al. (2010).

<sup>24</sup>As a robustness check, we repeated the analysis using an alternative control group that consists of the nationals of Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia, which joined the EU in 2004 (see Section 7).

who arrived in Italy before 2007, i.e., before Romania and Bulgaria joined the EU.<sup>25</sup> We also restrict our sample to immigrants who do not hold Italian citizenship by the time of the interview and with no more than ten years of residence in Italy by the time of the EU accession since a non-EU citizen, having legally resided in Italy for ten years, is eligible to apply for the Italian citizenship.<sup>26</sup>

In Figure 1, we present the average monthly consumption of immigrant households in the host country for the treatment and the control groups, before and after the enlargement for each year. As shown in panel A, Romanians and Bulgarians living in Italy had lower average monthly consumption than immigrants from EU candidate countries. The difference remained fairly constant until 2007, suggesting that the consumption expenditure of treatment and control groups were following parallel trends prior to the EU enlargement. In 2007, with the EU accession, the average monthly consumption of the treated group increased substantially, while the one of the control group continued to grow at approximately the same rate as in the previous years (panel A). This increase in total consumption was mainly driven by the increase in the expenditure on food, clothing and other basic needs and on transportation, leisure, installment purchases and debt (panels B and D) and is evident not only immediately after the EU accession but also in the following years. By contrast, the immigrant households' housing expenditure continued to grow in the year of EU accession at approximately the same rate as in the previous years, both for the treated and the control group (panel C).

Table 1 presents the means of all the variables included in our analysis for the treated and control groups in our sample prior to (2004-2006) and after (2007-2012) the EU enlargement (see Appendix Table A2 for a description of these variables). Focusing on the individual and household characteristics, the treatment and control groups are similar to each other before the EU enlargement in terms of age composition. However, there are notable differences in other characteristics. Immigrants from Bulgaria and Romania are more likely to be female and to be more educated than immigrants from EU candidate countries. They are less likely to have a valid residence permit (being documented) and they reside in Italy for a smaller average number of years. Moreover, they tend to live in smaller households with fewer children. In terms of employment outcomes, Bulgarian and Romanian immigrants

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<sup>25</sup>As a further robustness check, we repeated the analysis by restricting our sample to Romanian and Bulgarian migrants who moved to Italy at least one year, then two years and finally three years before the EU enlargement (see Section 7). Note that the latter corresponds to immigrants who arrived in Italy before the end of the accession negotiations of Romania and Bulgaria in 2004.

<sup>26</sup>We use this excluded group to perform a placebo exercise in Section 7.

have lower labor income than immigrants from EU candidate countries and are more likely to work under temporary contracts and in the informal sector.

Focusing on the before and after trends, the treated group experiences higher consumption and labor income increases than the control group after the enlargement. The share of females and the average years of residence evolve in a similar way among the two groups while the composition by education remains pretty stable over time. There is an increase in the fraction of immigrants with at least one child and a decrease in the fraction of those with spouses living abroad, especially in the treated group. These differences could affect our analysis, as other things being equal, they would lead to an increase in the number of household members that would translate mechanically into an increase in household consumption expenditure. Therefore, in our analysis we always control for the changing household structure and perform a series of robustness checks on this issue.

In the next section, we account for compositional differences between the treated and control groups and test the validity of the parallel trends assumption using a regression framework, which reinforces the causal interpretation of the effect of EU accession on the monthly consumption expenditure of immigrants from new EU member countries. In what follows, we also examine whether any trends in the observable characteristics of immigrants are the same across the treatment and control groups. In particular, we test the validity of our approach by analyzing whether the composition of Romanians and Bulgarians changed in some systematic way following the EU enlargement.

## **5 Regression Analysis**

### **5.1 Short-term analysis**

Since the observed differences in consumption presented in Figure 1 may reflect the underlying differences between the treatment and the control groups rather than a treatment effect, it is important to control for individual and household characteristics. For this purpose, we first focus on the short-term impact of the EU accession (i.e. from year 2006

to 2007) and set our empirical model as follows:

$$\begin{aligned}
 \ln(c_{icpt}) = & \alpha + \beta post_t + \gamma new EU_c \times post_t + \overbrace{X_{icpt}\theta}^{\text{individual controls}} \\
 & + \underbrace{Z_{icpt}\varphi}_{\text{household controls}} + \underbrace{\phi_c}_{\text{country of origin fe}} + \underbrace{\eta_p}_{\text{province fe}} + \epsilon_{icpt}, \quad (1)
 \end{aligned}$$

where  $i$  is an index for the households,  $c$  is the country of origin,  $p$  is the Italian province of residence and  $t$  is the year of the interview. The dependent variable  $\ln c_{icpt}$  is the natural logarithm of immigrant household  $i$ 's average monthly consumption expenditure (total; food, clothing and other basic needs; housing such as rent, mortgage, maintenance, bills; or other items such as transportation, leisure, installment purchases and debt) in the host country. The variable  $new EU_c$  is an indicator for individuals in the treated group and  $post_t$  is a dummy variable that takes the value 1 in the year of enlargement (2007) and 0 in the year before (2006). The coefficient of the interaction between the  $new EU_c$  and  $post_t$  is the short-term effect of the EU enlargement on the consumption of immigrant households from the new member countries in the host country. The term  $new EU_c$  is not shown as its coefficient is absorbed by the country of origin fixed effects,  $\phi_c$ . The individual controls  $X_{icpt}$  include an indicator for whether the respondent is a female; the respondent's age and its square; indicators for the respondent's education categories (none, primary, secondary and tertiary or above); and the respondent's years of residence in Italy. The household controls included in the vector  $Z_{icpt}$  are the number of household members; the total number of children living in Italy and abroad; the number of children and non-adult children living with the respondent in Italy; an indicator for the spouse living abroad; an indicator for home ownership in Italy. In our full specification, we also include the respondent's average monthly labor income in addition to individual and household controls as a proxy for the household income. Finally, province of residence in Italy is denoted as  $\eta_p$  and  $\epsilon_{icpt}$  is an error term. As immigrants of the same nationality are likely to reside in the same province, the consumption expenditure may be correlated within country of origin groups but also within provinces. We thus cluster standard errors by Italian province of residence and country of origin using the two-way method proposed by Cameron et al. (2011).<sup>27</sup>

In equation 1, the coefficient  $\beta$  is the shared effect of the EU enlargement. The main

<sup>27</sup>This results in 88 clusters in the short-term analysis. Nevertheless, we also check sensitivity of our results clustering standard errors solely at the country of origin level (11 clusters) using the wild bootstrap method (Cameron et al., 2008) with 1000 replications to account for the small number of clusters (see Section 7).

coefficient of interest is  $\gamma$  which is the difference-in-differences coefficient, comparing monthly consumption of immigrant households from new member states and EU candidate countries in the host country, before and after the EU enlargement. Table 2 presents the short-term estimates in separate panels for total consumption and for the broad categories of consumption expenditure. In each panel, we include country of origin and Italian residence of province fixed effects, and gradually add individual and household controls. In the last column of each panel, we also control for the respondent’s average monthly labor income net of taxes.<sup>28</sup>

As shown in panel A of Table 2, the coefficient of the interaction term is positive, and statistically significant, suggesting that Romanian and Bulgarian households living in Italy increased their total consumption with the EU accession. The estimated effects are fairly similar across specifications which can be taken as a first indication that our findings are not driven by the changes in the composition of immigrants after the EU enlargement. Using the full specification (panel A column 4), we find an increase in total consumption of around 8.9% which is consistent with the presence of liquidity constraints. The remaining panels of Table 2 focus on broad categories of the consumption expenditure, i.e. basic need items (food and clothing), housing, and durables (transportation, leisure, installment purchases and debt) that account on average for around 40%, 40% and 20% of total consumption, respectively. According to our estimates, the positive effect is significant for expenditure on basic need items (panel B) and on durables (panel D), but there is no immediate significant effect on housing expenditure (panel C). Our estimates imply that with the EU accession, Romanian and Bulgarian households residing in Italy increased their expenditure on food, consumption, and other basic needs of around 7.7%, which is similar in magnitude to the effect on total consumption, and their expenditure on less basic needs and durable goods around 14%.

## 5.2 Pre-trends and persistence

In order to test the validity of our analysis, we now adopt a more generalized framework like in Autor (2003) that allows us to test for parallel trends but also to examine the persistence of the effect. For this purpose, we use data for the period 2004-2012 and we

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<sup>28</sup>One drawback is that household income information is not available for survey years earlier than 2007. Therefore, we use the respondent’s labor income as a proxy of the household income (the correlation coefficient between household income and respondent’s labor income in our sample is around 0.27 for the years 2007-2012). Dropping the respondent’s labor income from our preferred specification, leaves our main results unchanged.



augment equation (1) with lags and leads of the treatment as given by equation (2)

$$\begin{aligned}
 \ln(c_{icpt}) = & \alpha + \overbrace{\sum_{j=-3}^5 \gamma_j D_{icpt}(t = 2007 + j)}^{\text{leads \& lags of the treatment}} \times new\ EU_c \\
 & + \underbrace{X_{icpt}\theta}_{\text{individual controls}} + \underbrace{Z_{icpt}\varphi}_{\text{household controls}} + \underbrace{\phi_c}_{\text{country of origin fe}} + \underbrace{\eta_p}_{\text{province fe}} + \underbrace{\lambda_t}_{\text{year fe}} + \varepsilon_{icpt}, \quad (2)
 \end{aligned}$$

including year fixed effects ( $\lambda_t$ ) in our specification to capture the common time trends in the monthly consumption expenditure of the treatment and the control groups, and the changes in macroeconomic variables (e.g. inflation). The term *new EU<sub>c</sub>* is not shown because the coefficient is absorbed by the country of origin fixed effects ( $\phi_c$ ).

In equation (2)  $D_{icpt}(\cdot)$  is an indicator variable for each year of the interview  $t$ . For  $j = 0$ , the estimate of the parameter  $\gamma_j$  is the immediate effect of the enlargement in 2007, which is comparable to the coefficient estimate  $\gamma$  in equation (1). Moreover, if the estimates of  $\gamma_j$  for  $j = -3, -2$ , and  $-1$  are not statistically significant we can conclude that the trends between the treated and the control group in the period before the EU enlargement (2004-2006) were parallel, which is crucial for the validity of our difference-in-differences estimation. Furthermore, the  $\gamma_j$  for  $j > 0$  are informative about the persistence of the effect, i.e., whether the increase in consumption after the enlargement is permanent or temporary.

Table 3 and Figure 2 show the results that we obtain from this generalized method, with 2004 being the reference year. First, the coefficients for 2005 and 2006 are not statistically different from zero confirming the validity of the parallel trends assumption. Furthermore, the estimates for 2007 are in line with those obtained by (1) as we find a positive and significant effect on total consumption, as well as on expenditure on food, clothing and other basic needs (panel B) and on transportation, leisure, installment purchases and debt (panel D), but no significant effect on housing expenditure (panel C) in the short-run, with the estimated coefficients for the interaction between *new EU<sub>c</sub>* and *year 2007* being similar in magnitude to those presented in Table 2 (*new EU<sub>c</sub> × post*). Moreover, the coefficients of total consumption expenditure and of its subcategories are statistically significant and positive in various years after 2007, suggesting that the results of the EU enlargement do not vanish. Moreover, in the medium run it emerges a positive effect on housing expenditure as well. In the next section, we explore whether improved employment conditions lie behind

these effects providing a possible explanation for their pattern and discussing the role of the precautionary savings motive.

## 6 Mechanisms

One of the most important benefit for the immigrants of the new EU member countries is the right to work in all EU countries without the need of a work permit. As discussed in Section 3, Italy had initially announced that it would impose interim restrictions to protect its labor market just like other EU countries did. However, just a few days before the accession Romanians and Bulgarians acquired full rights to work in Italy. This could have direct effects on the employment probability and the labor income of our treated group which may explain the increase in the immigrant household consumption that we documented in the previous section. In fact, after the EU enlargement the labor income and the percentage of those with permanent contracts increased among immigrants in the treated group (by 6% and 8 percentage points, respectively) while they remained fairly constant among immigrants in the control group (see Table 1). Moreover, before the EU enlargement 20% of immigrants in our treated group were undocumented and 31% were working informally. After the EU enlargement, they all became documented (as they gained EU citizenship) and the percentage of informality decreased sharply -yet did not disappear- to 18%. At the same time the percentage of undocumented and of those working informally decreased only slightly among immigrants in the control group.

Table 4 presents the results of regressions for different labor market aspects.<sup>29</sup> We observe a positive labor force participation effect after the accession (column 1) and a positive, though not statistically significant, employment effect (column 2). Indeed, most immigrants who were legal residents before the accession were already employed since obtaining a work permit is the most common way of becoming documented in Italy (Mastrobuoni and Pinotti, 2015).<sup>30</sup> Moreover, even undocumented immigrants tend to work but in the shadow economy.<sup>31</sup> Note that the ISMU data contain information both for the formal and the informal employment, and thus it is not puzzling that the probability of employment did not increase significantly. What did increase after the EU enlargement is the labor income (column 3).

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<sup>29</sup>The ISMU data contain information on labor market outcomes in all available waves (2001-2012). We estimate linear probability models for the probability of working informally and the probability of holding a permanent contract .

<sup>30</sup>In our sample, 65% of all documented immigrants have a residence permit for work reasons.

<sup>31</sup>In our sample, 74% of all undocumented immigrants work and all do so in the informal sector.

The increase in the labor income is in line with Ruhs (2017), who finds that labor earnings of Eastern European immigrants in the UK have increased after the accession of their home countries in the EU. Our data allow us to further explore whether the increase in the labor income that we observe in our setting has occurred by immigrants moving out of the shadow economy. Indeed, as shown in column 4, we find a strong decrease in the probability of working in the informal sector in the period 2007-2011, consistent with this argument. We then repeat the analysis on labor income, but only for those employed in the formal sector, and the positive effects essentially disappear (column 5). Among those, we find instead a significant increase in the probability of having a permanent contract in the years 2008 and 2009 (column 6).

An alternative explanation for our results might be that the immigrant households' consumption response is due to the change in the residence legal status associated with the EU accession. In fact, Dustmann et al. (2017) analyze the effect of immigrants' legal status on their consumption behavior and find that undocumented immigrants consume about 40% less than documented immigrants. As a result of gaining EU citizenship, all Romanian and Bulgarian immigrants in Italy were documented after 2007. Although the ISMU data provide information on current legal status, there is no information on former legal status (before the EU enlargement). Due to their cross-sectional nature, it is also not possible to distinguish between those immigrants from the newly accessed countries that were legalized by the EU enlargement, and those that were legally residing in Italy already before. Likewise, there is no retrospective information on informal/formal work. Still, we are able to single out a particular set of immigrants, for whom we can infer that they were both residing legally and working in the formal sector before the accession of their home country in the EU. We do so by focusing on a subsample of documented immigrants who reported in 2007 to have a valid residence permit for (dependent) work. The rationale behind our strategy is that the respondents in our treatment group should have obtained the permit (i.e. legally residing and working in the formal sector in Italy as an employee) before the EU enlargement, since there was no need for them to obtain or renew it in 2007 after the EU accession.<sup>32,33</sup> This strategy has the advantage of identifying the set

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<sup>32</sup>As discussed in Section 2, work permits in Italy expire after one or two years, depending on the type of contract (temporary/permanent). Therefore, we can identify immigrants that were documented and working formally before the enlargement only in the short run.

<sup>33</sup>Although there is no retrospective information on informal/formal work, we assume that immigrants who hold a residence permit for dependent work were working in the formal sector since this is the only way to obtain the permit. Indeed, among the documented immigrants in our sample in 2006, 97% of those who were holding a residence permit for dependent work were actually working in the formal sector.

of immigrants, for whom the EU enlargement basically implied that they did not need to renew their permits any more as opposed to undocumented immigrants or those working informally, who derived more tangible benefits from becoming documented and in many cases moving to the formal sector. We thus replicate our short-term analysis using this particular group of immigrants. These results are reported in Table 5. We observe that the estimated effect on food, clothing and other basic needs turns to be insignificant for immigrants who were legal already before the enlargement. On the other hand, there is an increase in their total consumption expenditure driven mainly by the increase in household consumption of durable goods such as transportation, installment purchases and debt.

Table 6 focuses on the treatment effect on labor market outcomes in the short-run for this subgroup of formerly legal immigrants in order to explore the underlying mechanism behind the response in consumption. The small and insignificant estimates on labor income (column 1) and on the probability of having a permanent contract (column 2) suggest that the labor market outcomes of immigrants from newly accessed countries, who had a valid permit and were working in the formal sector even before 2007, were not immediately affected by the EU enlargement. This is not surprising since transitions into permanent contracts usually take time. Given that the ISMU data do not allow us to explore the long-term effects of the EU enlargement on the labor market outcomes of this subgroup of immigrants, we provide further evidence using data from the Italian Social Security (INPS) records. The Social Security data contain information for a 6,5% random sample of all private sector employees in Italy (see Data Section in the Appendix for further details). Due to their administrative nature, these data include only immigrants that are working in the formal labor market as employees who in principle correspond to the ISMU subsample of documented immigrants with a valid work permit.<sup>34,35</sup> To have comparable results with the ISMU data, we restrict the sample to immigrants that work in a firm located in Lombardy and appear at least once in the Social Security data before 2007 with less than 10 years of experience.<sup>36</sup> An advantage of the Social Security data is that we can also observe daily wages, which differently from monthly wages in the ISMU data, do not reflect changes in the labor supply. Appendix Table A3 reports the descriptive statistics of our sample. We see that the treated and the control

<sup>34</sup>Hotchkiss et al. (2015) show that administrative data in the US may actually include a small number of undocumented immigrants with ‘fake’ fiscal code.

<sup>35</sup>As it is often common with administrative data, we are not able to distinguish unemployment from non-participation in the Social Security Records.

<sup>36</sup>Since we lack information on the year of arrival in Italy, we use the date of entry in the labor market as a proxy of the arrival date.

groups experience similar increases in daily and monthly wages after the EU enlargement. However, there is an increase in the percentage of workers with a permanent contract only among the treated.

The panel nature of the administrative data allows us to follow individuals over time and to perform a regression analysis with worker and firm fixed effects.<sup>37</sup> In this way we are able to account for unobserved heterogeneity without the extensive list of controls that were available in the ISMU data and were important to include in a repeated cross-sectional setting. Table 7 reports the results of this analysis. There is no statistically significant effect on monthly (column 1) or daily (column 2) wages, while the probability of having a permanent contract increases from 2008 onwards (column 3). Moreover, pre-trends seem to be parallel as the coefficients are not statistically significant in the period before the enlargement. The regression estimates confirm the cross sectional results from the ISMU survey (Table 4, columns 5 and 6) and suggest that although legalization is not the reason behind it, employers reacted positively to the fact that Romanians and Bulgarians did not need to pass anymore through the tedious bureaucratic procedure of renewing their work permit. In other words, the new legal framework after the EU accession acted as a ‘permanent’ work permit. Increased employment stability reduced the uncertainty for future labor income, which in turn increased their consumption expenditure. This result is in line with Gathmann and Keller (2018) who find that faster access to citizenship for immigrants in Germany has improved their labor market attachment.

The above labor market story is broadly consistent with the pattern of our consumption results. We observe an immediate increase in consumption in 2007 and then again a few years later. The former is due to the increase in food, clothing and other basic need expenditures by the previously undocumented immigrants whose labor income rises but also due to the increase in durable goods by the previously documented immigrants working in the formal sector. Although the latter did not experience any increase in labor income, they might have anticipated that they would be able to access a permanent job in the future. Our analysis supports this hypothesis as consumption increases again after having obtained the permanent contract.

It is also worth noting that these results are suggestive of a reduced precautionary savings motive. To verify this, we use the ISMU data that include some information on average monthly savings in Italy as well as on average monthly remittances. Unlike consumption

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<sup>37</sup>We cluster standard errors at the worker and year level.

expenditure, the information on remittances and savings in the ISMU data is imperfect (Dustmann et al., 2017). Regarding savings, we only have information on savings held in the host country but no information on savings held in the home country. Ideally, we would like to have a measure of total savings (both in Italy and in the home country) in order to be able to analyze precautionary savings.<sup>38</sup> In relation to remittances, the ISMU survey asks respondents to report the average amount they send home each month, which is subject to measurement error, especially if transfers take alternative forms than sending money or are less frequent. Moreover, remittances may either end up as savings or investment in the home country or finance the consumption expenditures of family members who do not live in Italy.<sup>39</sup> This is why we study the two variables (savings in Italy and remittances) both separately and jointly as a composite measure of total savings. As many immigrant households in our sample report zero savings and/or remittances (42% and 47% of all cases, respectively), we first follow Dustmann and Mestres (2010b) and in our OLS estimates we set zero savings and/or remittances to 1 and use  $\log(y+1)$  as our dependent variable, where  $y$  is savings, remittances or the sum of the two. Then, we adopt a linear probability model in order to study the extensive margin of savings and remittances. Table 8 reports the results of both models.<sup>40</sup> There is a negative statistically significant effect on remittances in 2010 and on savings in 2012. These are years for which we find a positive effect on housing expenditures (Table 3, panel C) and a higher probability of having a permanent employment contract (Table 7, column 3). In line with Amuedo-Dorantes and Pozo (2006), who show that undocumented/risky-income immigrants tend to remit more, and Dustmann and Mestres (2010a and 2010b), who show that temporary immigrants are likely to remit and save more, we find that immigrants, by getting legalized and accessing permanent employment contracts, reduce savings and remittances after the EU enlargement.

<sup>38</sup>Dustmann and Mestres (2010a) show that not accounting for savings in the home country may result in distorted conclusions regarding immigrants' saving behavior.

<sup>39</sup>Immigrants may remit for a variety of reasons, ranging from altruism, exchange, inheritance, or strategic motives to family insurance and investment motives (see, for an excellent review, Rapoport and Docquier, 2006).

<sup>40</sup>These results should be interpreted with caution for the reasons we described above regarding the measurement of remittances and savings in the ISMU survey.

## 7 Robustness Checks, Placebo Exercise and Alternative Mechanisms

In this section we conduct various additional exercises. First, we address anticipation and spillover effects that are common threats to identification in a difference-in-difference framework. Second, we examine whether our estimates are sensitive to the measure of consumption, to the definition of immigrant households or to the way of clustering, and explore whether the business cycle or changes in household structure over time drive our results. Third, we consider selective out-migration (composition effects) and omitted variables/unobserved heterogeneity. Lastly, we perform a placebo exercise and discuss alternative mechanisms that may lie behind our findings.

### 7.1 Robustness checks

We start by performing a series of exercises to examine the robustness of our benchmark estimates (Table 3, panel A, column 4) and present these results in Table 9. First, we proceed by looking at anticipation effects as treated households that moved in Italy prior to the EU enlargement may have somehow anticipated that the labor market restrictions would have not been implemented. We thus restrict our sample to those that had migrated in Italy at least one year, then two years and finally three years before December 27, 2007. Note that the latter corresponds to immigrants who arrived in Italy even before the end of EU accession negotiations of Bulgaria and Romania in 2004. These results are presented in columns 1-3. We find that both the short- and the medium-run effects of the EU enlargement on the total household consumption of the Romanian and Bulgarian immigrants remain positive and significant, even for those who arrived in Italy well before the announcement of the policy, suggesting that our results are not driven by anticipation.

Second, we try to understand whether there are any spillover effects between the treated and the control group (the so-called SUTVA-see Rubin, 1977). In particular, if the treated and the control group competed for the same jobs, the EU accession could not only benefit the treated but also negatively affect the control, undermining our difference-in-difference strategy. To address this issue, we first compare provinces where the treated and the control group were of similar size before 2007 (Figure 3 panel a) to provinces where the treated group was the minority (Figure 3 panel b).<sup>41</sup> The idea behind our strategy is that spillover effects

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<sup>41</sup>These provinces are in panel a, Province of Cremona, Province of Pavia, and Metropolitan City of Milan

should be stronger in provinces where the treated and the control groups are of similar sizes (potentially through the competition in the labor market) than in provinces where the treatment group was a minority. The effect of the EU enlargement on consumption is not different between the two sets suggesting that SUTVA is likely to be satisfied in our setting. A similar picture emerges when we compare occupations that experienced an increase in the fraction of the treated group after the enlargement with industries/occupations that did not (Figures 4a and 4b).<sup>42</sup>

We then check the sensitivity of our analysis to the alternative measures of consumption. In particular, we use individual consumption calculated as the ratio between household consumption and the number of members of the household residing in Italy, converted into equalized adults using three alternative equivalence scales. These results are presented in columns 4-6. In column 4 we use the standard OECD equivalence scale to calculate individual consumption from household consumption, while in column 5 we utilize the modified OECD scale and in column 6 the equivalence scale used by ISEE (*Indicatore della situazione economica equivalente*).<sup>43,44</sup> The estimated effects are very similar across these different measures of individual consumption and in line with our benchmark estimates presented in Table 3 (panel A, column 4).

An additional robustness exercise is to use as an alternative control group the immigrants from the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia (together referred to as the A8 countries) that accessed the EU in 2004.<sup>45</sup> The advantage of using the nationals of A8 countries as a control group is that they are unlikely to be affected by the EU enlargement since they acquired the EU citizenship already in 2004. Thus, possible spillover effects are not a concern in this setting. These results are presented in Table 9, column 7. Comparison of these results to our benchmark estimates

and in panel b, Province of Varese, Province of Brescia, Province of Lecco, Province of Como, and Province of Bergamo. See Appendix Table A4 for the relative sizes of the treatment and control groups by Italian province of residence prior to the EU enlargement.

<sup>42</sup>See Appendix Table A5 for the percentage point change in the fraction of Romanian and Bulgarian immigrants following the EU enlargement by occupation.

<sup>43</sup>Standard OECD equivalence scale assigns a weighting of 1 to the first adult, 0.7 to the second and each subsequent adult, and 0.5 to each child, whereas modified OECD equivalence scale assigns a weighting of 1 to the first adult, 0.5 to the second and each subsequent adult, and 0.3 to each child in the household. The equivalence scale used by ISEE, on the other hand, assigns a weighting of 1 to the first person in the household, 0.57 to the second person, 0.47 to the third person, 0.42 to the fourth person, 0.39 to the fifth person, and 0.35 to the subsequent persons.

<sup>44</sup>In these specifications we do not control for the number of household members and the number of cohabiting children as this is already taken into account by the equivalence scale. We still include though controls for the total number of children and for whether the spouse of the respondent lives abroad in order to account for non cohabiting household members.

<sup>45</sup>In 2004, two other states, Cyprus and Malta also joined the EU. However, we do not observe anyone from these two member states in our sample probably because these are countries with quite small population.



in Table 3 shows that they are quite similar in magnitude, although the coefficients are less precisely estimated due to the smaller sample size.

Next, we check the sensitivity of our analysis to the definition of the immigrant households' country of origin. Throughout our analysis, we consider a household being from a particular country if the respondent is from that country. Although the ISMU data do not include information on the nationality of each family member, there was a question on whether the partner and the respondent came from the same country of origin (in case the partner was listed among the cohabiting household members in Italy). This piece of information is available in the survey years 2006-2012 but not in 2004-2005. As a robustness check, we restrict our sample to immigrants who either do not live with a partner in Italy or live with a partner from the same country of origin. Estimating our benchmark model for this subgroup of immigrants does not alter our results in any way (column 8).

As discussed in Section 4, consumption expenditure might be correlated within the country of origin groups, but also within provinces as immigrants from the same nationality tend to concentrate/live close to each other. Thus, throughout our analysis, we use two-way clustered (at Italian province of residence and at country of origin level), but we also check how robust our estimates are to different ways of clustering. In particular, we cluster standard errors only at the country of origin level (11 clusters) and use the wild bootstrap method proposed by Cameron et al. (2008) with 1000 replications to account for the small number of clusters. These results (column 9) are in line with the benchmark.

During the period of our analysis Italy experienced the Great Recession, which led to severe job losses. Immigrants were particularly affected as they tend to be more susceptible to the economic cycle than natives (Dustmann et al., 2010). Although in our analysis both the treated and the control group comprise of immigrants and are therefore exposed to the recession in a similar way, it may be the case that the two groups were concentrated in provinces or occupations that were differently affected by the recession. Therefore, we add to our specification province-year, and occupation-year fixed effects in order to explore whether our results are driven by the business cycle at the local and occupational level.<sup>46</sup> To do so, we restrict the sample to employed individuals and use available information on the occupation of the immigrant (e.g. domestic worker, artisan, intellectual, employee in hotels/restaurants, construction worker, salesperson -see Appendix Table A5). The results

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<sup>46</sup>Including these controls in our main specification reduces our sample size as the occupation variable is only available for employed individuals.

after the inclusion of these new set of dummies (column 10) are similar to the benchmark.

Moreover, given that the EU enlargement may have affected the fertility or family reunification decisions of the immigrants, we include in our specification, in addition to the controls for the presence of a spouse living with the respondent in Italy and for the total number of children, their interaction with year dummies so as to investigate whether changes in the household structure over time drive the results on consumption (column 11). The estimates of this further robustness check show that our results are not sensitive to the changes in the household structure over time.

Another possible threat to our identification strategy is selective out-migration. It is possible that the composition of our sample changes after the EU accession given that the treated group acquired the right to move freely to other countries within the EU or due to return migration. In particular, mobility may be non-random and treated households that did not prosper in Italy may decide to leave the country in search of better opportunities elsewhere in the EU. If the composition of immigrants changed in some systematic way following the EU enlargement, then we need to take account of this selection when assessing the effects of EU enlargement on household consumption expenditure. For this purpose, we estimate a version of equation (2), where the dependent variable is the immigrants' characteristics (female, young, low educated, number of household members). These results are presented in Appendix Table A6. We do not find any significant change in the composition of our sample following the EU enlargement, confirming the robustness of our results. Moreover, the ISMU data include direct information on the intentions of immigrants to leave Italy (to return to the home country or move to a different country). This information is available only in the period 2010-2012, so we cannot study the effect of the EU enlargement. Still, we can check whether the intentions to leave Italy were systematically different between the treated and the control group in the period 2010-2012. Results in Appendix Table A7 show that Romanians and Bulgarians are not more likely to select into return migration/migration towards a different country than immigrants from EU candidate countries. This is true also when we restrict the sample to immigrants who arrived in Italy one or two years before the enlargement (columns 2 and 3).

Although in our analysis we include a comprehensive set of individual and household variables, a possible concern is that they may not fully control for all the relevant characteristics and thus equation (2) could suffer from the omitted variables problem. To assess the influence of omitted variables relative to the one of observed characteristics, we use a method

proposed by Altonji et al. (2005) and calculate the ratio of the influence of unobserved characteristics relative to the one of observed control variables that would be required so as to fully explain away our result. The intuition behind this approach is that if the inclusion of observed control variables substantially weakens the impact of the EU enlargement, then one would expect that the inclusion of additional controls (observed or unobserved) would reduce the estimated effect even further. Conversely, if the inclusion of additional controls has no substantial effect on the magnitude of the coefficient estimate, then this will support the causal interpretation. Thus, a large ratio would imply that the unobserved heterogeneity cannot fully explain away the estimated effect of the EU enlargement. In Appendix Table A8, we present this ratio based on our main results on total consumption (Table 3). The reported ratios are between three and seven, suggesting that in order to attribute the entire estimated effect of the EU enlargement on the total consumption to selection effects, the influence of unobservable factors would have to be between three to seven times greater than the one of the observable characteristics. These values are considered to be high (see, for example, Bellows and Miguel, 2009; Guriev et al., 2019; Nunn and Wantchekon, 2011). Therefore, we conclude that our estimates cannot be attributed to unobserved heterogeneity.

## 7.2 Placebo exercise and alternative mechanisms

We have seen so far that the EU accession increased the household consumption of the treated with respect to the control and provided evidence that the improved labor market conditions is a possible underlying mechanism. To provide additional supporting evidence, we perform a placebo exercise on a group of immigrants who were unlikely to benefit from the EU accession and were excluded from our analysis so far. In particular, we focus on immigrants who either held the Italian citizenship or were eligible to apply for it by 2007 (having resided in Italy for more than 10 years). We compare this group of immigrants with immigrants in the sample we used for our benchmark estimates, that we further split between those with less than 5 years and those with 5-10 years of residence by 2007. The latter were eligible for permanent residence permits and therefore the expected benefits from the EU accession would be lower for them. Table 10 reports the results for these three separate groups.<sup>47</sup> We verify a positive and statistically significant effect among immigrants with less than 5 years of residence by 2007 (column 1), while the coefficient of

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<sup>47</sup>Due to the sample split, we report the effect for the entire post period (2007-2012) as the number of observations is too small to perform a year-by-year analysis.

the interaction term is still positive but half in size and not statistically different from zero among immigrants with 5-10 years of residence (column 2). The effect completely vanishes (and turns even negative) when we focus instead on immigrants who held or were eligible to apply for the Italian citizenship by 2007 (column 3). This placebo exercise is consistent with the notion that immigrants who benefitted from the EU accession most were those not close to acquiring permanent residence or citizenship rights in Italy.

Still, the labor market mechanism does not exclude other channels that may have also contributed. More specifically, the EU accession may have also facilitated the access to credit for the treated households although in our benchmark specification we do not find any evidence of increased expenditures regarding housing, at least in the short run (Table 2, panel C). A possible reason is that mortgage payments and rent enter in the same way in the expenditures for housing. As the ISMU data do not contain any information on mortgages, we utilize a different data source, the Survey on Income and Life Conditions of Households with Foreigners conducted by the Italian National Institute of Statistics in 2009. The survey has been conducted only once and followed closely the design of the European Union Statistics on Income and Living Conditions (EU-SILC) but with a sample exclusively composed of households with at least one foreigner. Moreover, it has been specifically designed to be representative by nationality (see Data Section in the Appendix). More importantly, the survey contains unique information on whether households have a mortgage and the year that they obtained it. We define the treated and the control group in the same way as in the benchmark exercise and apply the same sample restrictions and identification strategy but we see no clear difference in the fraction of the treated and control with a mortgage issued immediately before or after the EU enlargement (see Appendix Table A9).<sup>48</sup>

Another possible mechanism is access to social benefits such as welfare or unemployment benefits. This mechanism could be relevant only for previously undocumented immigrants since documented immigrants, as long as they satisfy the eligibility conditions in terms of income thresholds and previous work experience, have access to social benefits even before the enlargement. However, in the period of our analysis (2004-2012), the measures to alleviate poverty were quite limited in Italy (i.e. a social card for food purchases of up to 40 euros per month for poor families with children less than 3 years old or for the elderly-see

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<sup>48</sup>More precisely, there is an increase in the fraction of immigrants with a mortgage issued after the EU enlargement but this is true both for the treatment and the control group.

Madana et al., 2014). Moreover, Italy was among the countries with the lowest replacement rate in unemployment (OECD, 2009) and benefits were accessible only by workers with at least 2 years of social insurance seniority (Giorgi, 2018). Therefore, we expect that social benefits have played a rather limited role.

At this point it is also worth noting that there is a literature that emphasizes the effects of immigration on prices (see, for example, Lach, 2007 for Israeli cities; Cortes, 2008 for the US cities; Zachariadis, 2011 and 2012 for a study of 140 cities in 90 countries). Although the proposed underlying mechanisms differ, the empirical studies commonly agree that an increase in immigration reduces prices.<sup>49</sup> In relation to our findings, if all prices went down due to the EU enlargement, this would affect both the treated and the control group, and hence this would not affect our results. If we assume that only prices related to certain Romanian and Bulgarian products went down and that the demand for these products is generally higher among the treated, the effect on total consumption expenditure would depend on the elasticity of these products and on their relative weight in the consumer basket. Although we cannot exclude this mechanism, we do not expect it to be the main driver of our results given the range of Romanian and Bulgarian products available in Italy.

Therefore, the improved labor market conditions continues to be the most plausible underlying mechanism behind the increases in the household consumption of the treated. Moving out of the shadow economy for previously undocumented immigrants as well as the increased probability of getting a permanent job for previously documented immigrants, whose work permit was no longer of limited duration, are the two main channels.

## 8 Conclusions

In this paper we focus on Romanian and Bulgarian households that had migrated to Italy before 2007 and study whether the accession of their home country in 2007 affected their consumption behavior. We find that their average monthly consumption expenditure increased significantly as soon as their home country accessed the EU. This increase is not just temporary and it cannot be attributed to the mere legalization.

On the one hand, immigrants from the new member countries who were working informally in Italy before the EU accession experience increases in labor income after the

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<sup>49</sup>For instance, according to Lach (2007) the underlying mechanisms is a demand-side channel of increased search and higher price elasticities for immigrants, while Cortes (2008) provides a supply-side explanation (through a reduction in wages).

accession by moving away from the shadow economy. On the other hand, documented immigrants from the new member countries who were working formally in Italy even before accessing the EU do not experience wage increases but have an increased probability of getting a permanent contract after the accession. We conjecture that the resolution of uncertainty regarding the renewal of work permits has contributed to this effect. In the new legal framework work permits did not have to be renewed for the citizens of the new member countries making firms more willing to offer them permanent contracts. Enhanced labor market stability decreases the uncertainty regarding future labor income and it consequently increases household expenditures-particularly those on durables. Our results are robust to a series of robustness checks addressing anticipation and composition effects as well as spillovers. We also discuss alternative possible channels, such as improved access to credit, and we conclude that improved labor market conditions is the most plausible underlying mechanism.

Our results have important policy implications in a period of increased legal uncertainty, following the decision of the United Kingdom to exit the EU, which is expected to increase significantly the bureaucratic burden of acquiring work permits. Moreover, our findings of a positive effect of immigrants' legalization on consumption expenditures in the host country contribute to the recent debate over the refugee crisis in Europe and the construction of the wall in the borders of the US with Mexico.

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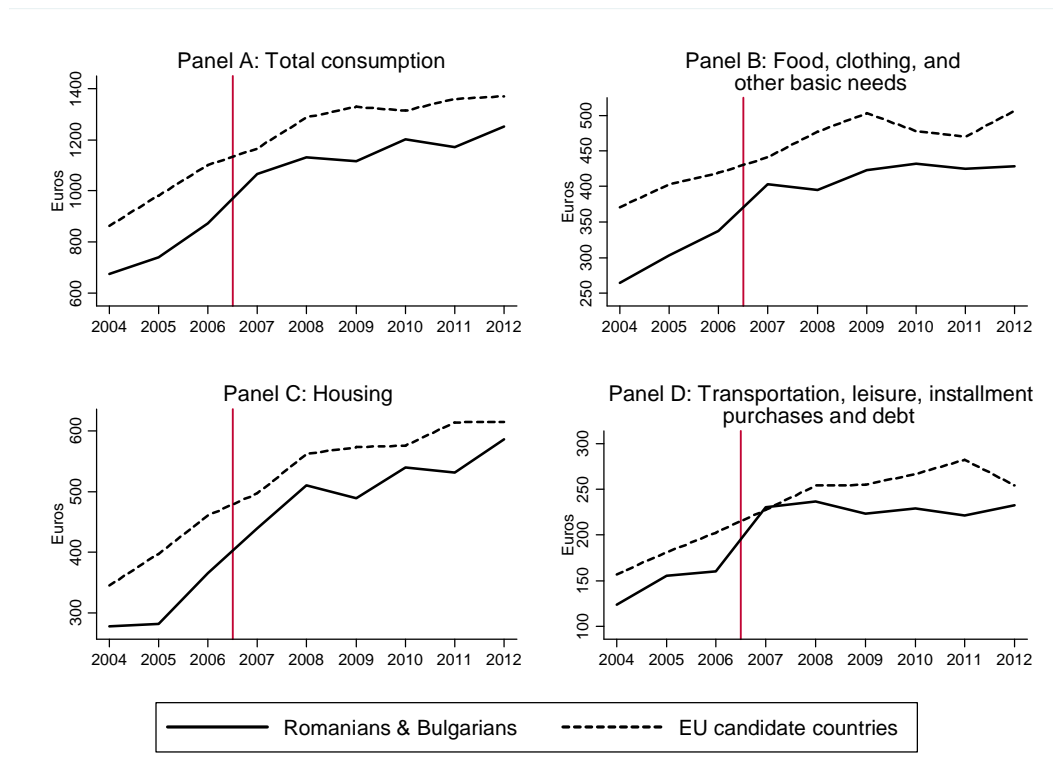
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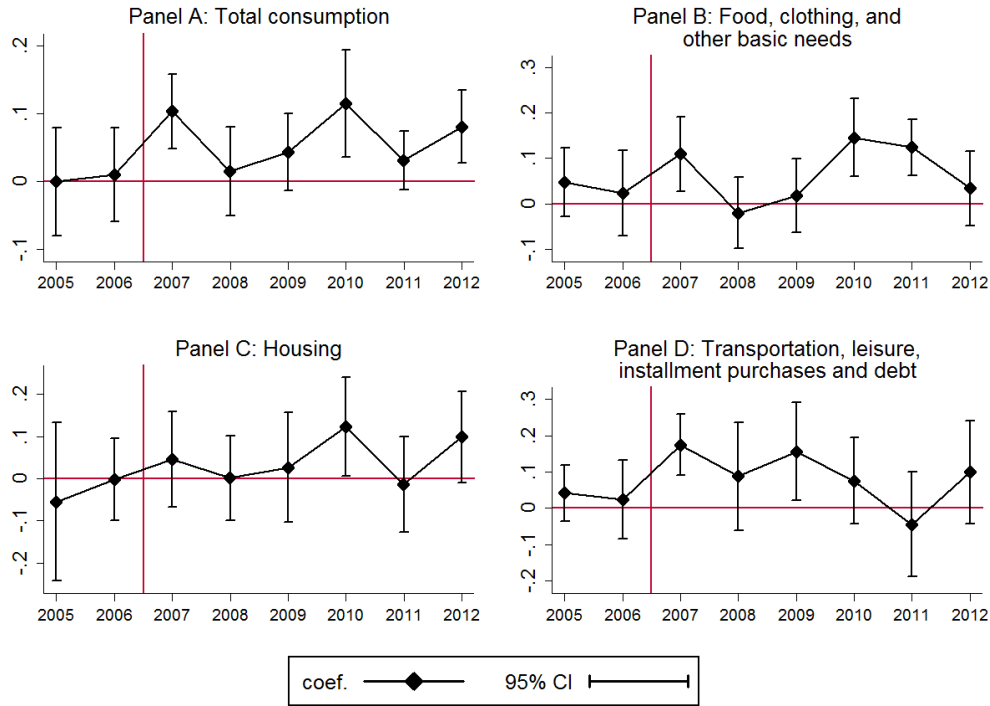
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## Figures and Tables



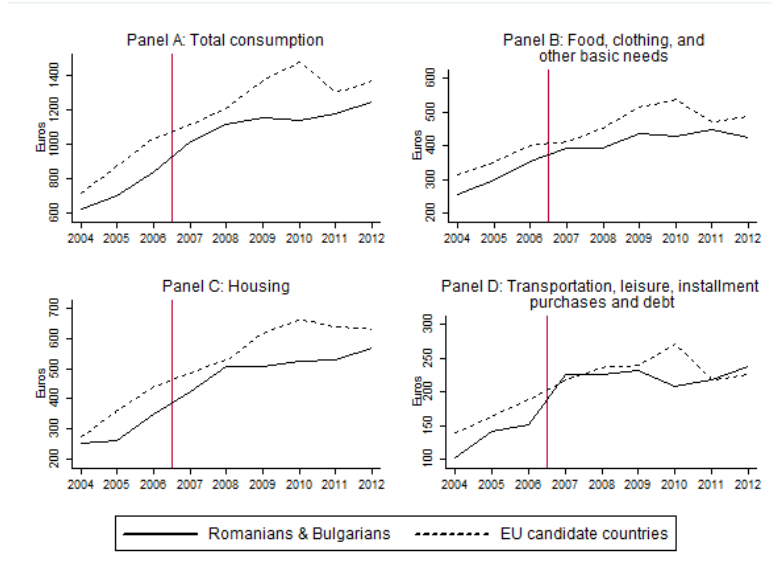
**Figure 1.** Immigrants from new EU member and candidate member countries residing in Italy, average monthly consumption expenditure

Data source: Institute for Multiethnic Studies (ISMU) 2004-2012 surveys. Sample includes immigrants from Romania, Bulgaria and candidate countries (Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, and Turkey) who arrived in Italy before 2007, who do not hold Italian citizenship by the time of the interview and with no more than ten years of residence in Italy by the time of the EU accession. The red vertical line represents the date of the EU accession of Romania and Bulgaria (1 January 2007). See text for variable definitions.

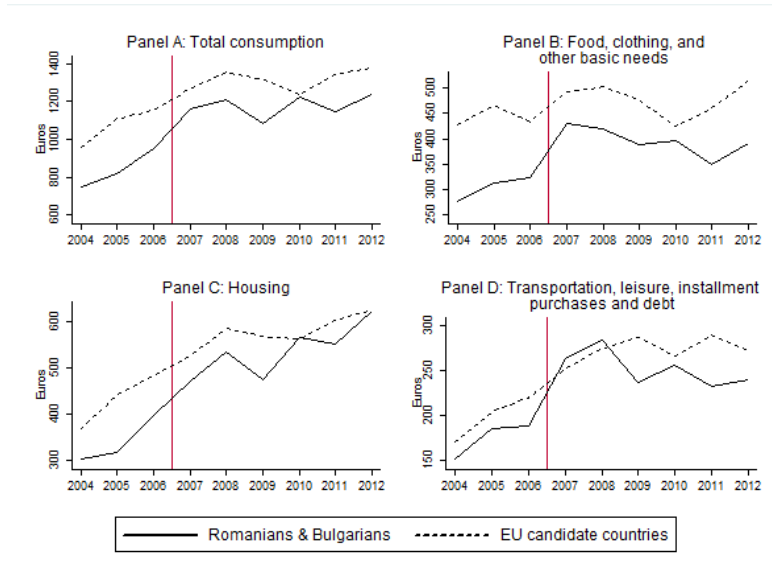


**Figure 2.** Estimated effect of the EU enlargement on the log monthly consumption expenditure of immigrant households from new EU member countries before, during, and after the EU accession

Data source: Institute for Multiethnic Studies (ISMU) 2004-2012 surveys. Sample includes immigrants from Romania, Bulgaria and candidate countries (Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, and Turkey) who arrived in Italy before 2007, who do not hold Italian citizenship by the time of the interview, with no more than ten years of residence in Italy by the time of the EU accession and with non-missing information on all variables included in equation (2). Each black dot displays the coefficient estimate of the interaction term between new EU indicator and the corresponding year from the full specification. The 95% confidence interval is constructed using the two way clustered (at Italian province of residence and at country of origin level) standard errors. The red vertical line represents the date of the EU accession of Romania and Bulgaria (1 January 2007).



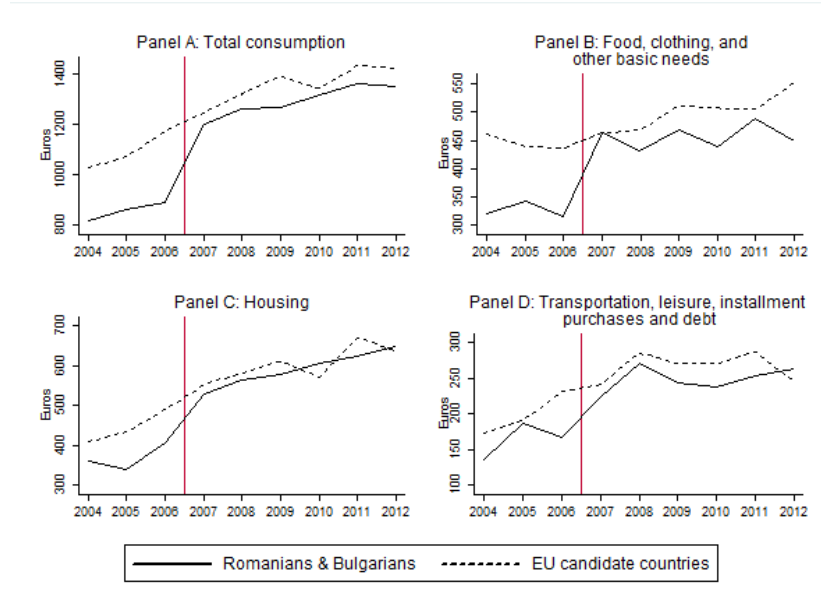
a. Provinces where the treatment and the control groups were of similar size before 2007



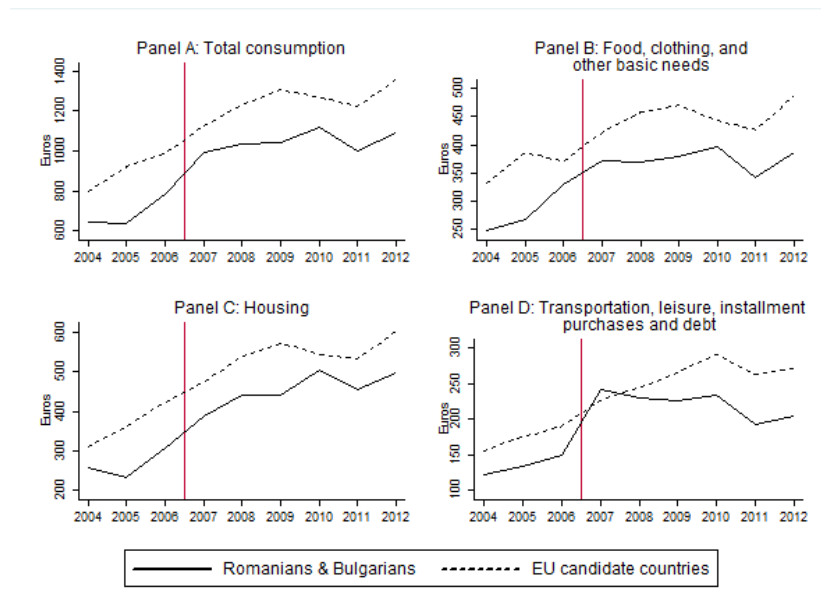
b. Provinces where the treatment group was the minority before 2007

**Figure 3.** Immigrants from new EU member and candidate member countries residing in Italy, average monthly consumption expenditure by Italian province of residence

Data source: Institute for Multiethnic Studies (ISMU) 2004-2012 surveys. Provinces included in panel a are Province of Cremona, Province of Pavia, and Metropolitan City of Milan. Provinces included in panel b are Province of Varese, Province of Brescia, Province of Lecco, Province of Como, and Province of Bergamo. The red vertical line represents the date of the EU accession of Romania and Bulgaria (1 January 2007). See Data Appendix for the full set of sample restrictions and variable definitions.



a. Occupations that experienced an increase in the fraction of treated after 2007



b. Occupations that did not experience an increase in the fraction of treated after 2007

**Figure 4.** Immigrants from new EU member and candidate member countries residing in Italy, average monthly consumption expenditure by occupation

Data source: Institute for Multiethnic Studies (ISMU) 2004-2012 surveys. The red vertical line represents the date of the EU accession of Romania and Bulgaria (1 January 2007). See Data Appendix for the full set of sample restrictions, variable definitions, and grouping of occupations.



**Table 1.** Sample means

	Before EU enlargement		After EU enlargement	
	Romanians & Bulgarians	Immigrants from EU candidate countries	Romanians & Bulgarians	Immigrants from EU candidate countries
	(1)	(2)	(3)	(4)
<b>Expenditure</b>				
Total consumption	917.61 (433.31)	1074.42 (518.32)	1280.61 (527.72)	1339.31 (521.66)
Food, clothing and other basic needs	351.70 (185.12)	437.41 (284.79)	454.79 (228.43)	490.69 (243.63)
Housing	393.88 (265.59)	440.83 (283.74)	569.49 (274.59)	580.99 (246.87)
Transport, leisure, installment purchases and debt	172.02 (109.24)	196.18 (124.26)	256.34 (179.61)	267.62 (214.92)
<b>Individual</b>				
Age	32.03 (7.23)	32.16 (8.46)	34.08 (8.36)	33.46 (8.67)
Female	0.48	0.39	0.56	0.42
Education: None	0.03	0.05	0.03	0.04
Education: Primary	0.29	0.39	0.27	0.37
Education: Secondary	0.55	0.45	0.56	0.48
Education: Tertiary	0.13	0.11	0.14	0.11
Years of residence	4.09 (2.10)	5.05 (2.23)	6.79 (2.98)	7.85 (2.89)
Have a valid residence permit (documented)	0.80	0.92	1.00	0.96
Number of household members	2.32 (1.14)	2.83 (1.45)	2.84 (1.34)	3.23 (1.45)
Have children	0.53	0.57	0.63	0.61
Number of children (if >0)	1.53 (0.67)	1.84 (0.88)	1.61 (0.78)	1.84 (0.90)
Number of cohabiting children (if >0)	1.42 (0.59)	1.74 (0.80)	1.48 (0.66)	1.75 (0.74)
Number of cohabiting non-adult children (if >0)	1.39 (0.56)	1.68 (0.76)	1.42 (0.62)	1.67 (0.68)
Have a spouse living abroad	0.12	0.08	0.06	0.05
Living in own property in Italy	0.09	0.09	0.19	0.20
<b>Labour market</b>				
Monthly labor income (including zeros)	914.78 (496.92)	950.96 (604.02)	971.36 (604.08)	955.20 (637.24)
In the labor force	0.93	0.87	0.92	0.85
Employed	0.88	0.84	0.85	0.79
Employee	0.98	0.96	0.96	0.94
Formal sector (if employee)	0.69	0.80	0.82	0.86
Permanent contract (if employee)	0.71	0.81	0.79	0.79
Number of observations	656	1,207	1,253	2,269

Data source: Institute for Multiethnic Studies (ISMU) surveys 2004-2012. Sample includes immigrants who arrived in Italy before 2007, with no more than ten years of residence in Italy by 2007, who did not hold Italian citizenship by the time of the interview. EU candidate countries: Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, and Turkey. Standard deviations of the continuous variables are in parentheses. See Data Appendix for variable descriptions.

**Table 2.** Estimated effect of EU enlargement on the log monthly consumption expenditure of immigrant households from new EU member countries (2006-2007), short-term analysis

	Panel A. Total Consumption				Panel B. Food, clothing and other basic needs			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
post	0.111*** (0.025)	0.048* (0.028)	0.056** (0.026)	0.052** (0.024)	0.098* (0.056)	0.046 (0.054)	0.057 (0.051)	0.054 (0.050)
new EU x post	0.060*** (0.010)	0.103*** (0.026)	0.102*** (0.032)	0.089** (0.034)	0.063*** (0.022)	0.098*** (0.024)	0.090*** (0.028)	0.077*** (0.032)
Country of origin dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Household controls	No	No	Yes	Yes	No	No	Yes	Yes
Labor income	No	No	No	Yes	No	No	No	Yes
Nobs	1,627	1,627	1,627	1,627	1,627	1,627	1,627	1,627
Adjusted R <sup>2</sup>	0.090	0.205	0.439	0.468	0.094	0.163	0.346	0.365

**Table 2.(cont.)** Estimated effect of EU enlargement on the log monthly consumption expenditure of immigrant households from new EU member countries (2006-2007), short-term analysis

	Panel C. Housing				Panel D. Transportation, leisure, installment purchases and debt			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
post	0.124*** (0.032)	0.040 (0.034)	0.049 (0.035)	0.046 (0.036)	0.110*** (0.025)	0.056** (0.027)	0.060** (0.030)	0.055* (0.032)
new EU x post	-0.006 (0.044)	0.051 (0.037)	0.056 (0.051)	0.045 (0.055)	0.131** (0.056)	0.158*** (0.060)	0.157** (0.063)	0.140** (0.065)
Country of origin dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Household controls	No	No	Yes	Yes	No	No	Yes	Yes
Labor income	No	No	No	Yes	No	No	No	Yes
Nobs	1,627	1,627	1,627	1,627	1,627	1,627	1,627	1,627
Adjusted R <sup>2</sup>	0.065	0.166	0.340	0.351	0.056	0.093	0.144	0.170

Data source: Institute for Multiethnic Studies (ISMU) surveys 2006 and 2007. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Two-way clustered standard errors (at Italian province of residence and at country of origin level) are in parentheses (88 clusters). All specifications include country of origin and Italian province of residence fixed effects, and a constant term. Individual controls include respondent's gender, age, age squared, dummies for education level (none, primary, secondary, tertiary), and years of residence in Italy. Household controls include an indicator for having a spouse living abroad, number of household members, number of children, number of cohabiting children, number of cohabiting non adult children, and a dummy for living in own property in Italy. Labor income is the average monthly labor income (net of taxes) of the respondent. See Data Appendix for variable definitions.

**Table 3.** Estimated effect of EU enlargement on the log monthly consumption expenditure of immigrant households from new EU member countries (2004-2012), pre-trends and persistence

	Panel A. Total Consumption				Panel B. Food, clothing and other basic needs			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
new EU x year 2005	0.006 (0.051)	-0.011 (0.053)	0.002 (0.045)	-0.001 (0.041)	0.053 (0.048)	0.038 (0.050)	0.050 (0.041)	0.047 (0.038)
new EU x year 2006	0.044 (0.040)	0.032 (0.028)	0.028 (0.033)	0.010 (0.035)	0.051 (0.047)	0.041 (0.039)	0.040 (0.046)	0.024 (0.048)
new EU x year 2007	0.117*** (0.041)	0.135*** (0.035)	0.130*** (0.029)	0.103*** (0.028)	0.131*** (0.047)	0.146*** (0.042)	0.134*** (0.042)	0.109*** (0.042)
new EU x year 2008	0.057** (0.026)	0.069** (0.030)	0.031 (0.029)	0.015 (0.033)	0.027 (0.026)	0.037 (0.031)	-0.006 (0.038)	-0.020 (0.040)
new EU x year 2009	0.072** (0.037)	0.073* (0.041)	0.067** (0.030)	0.042 (0.029)	0.056 (0.044)	0.057 (0.043)	0.040 (0.041)	0.018 (0.042)
new EU x year 2010	0.168*** (0.049)	0.165*** (0.050)	0.151*** (0.042)	0.114*** (0.040)	0.196*** (0.043)	0.194*** (0.046)	0.179*** (0.042)	0.145*** (0.044)
new EU x year 2011	0.084*** (0.032)	0.062** (0.027)	0.054*** (0.020)	0.031 (0.022)	0.166*** (0.046)	0.147*** (0.036)	0.145*** (0.031)	0.124*** (0.031)
new EU x year 2012	0.109** (0.056)	0.085 (0.060)	0.103*** (0.028)	0.081*** (0.028)	0.056 (0.057)	0.030 (0.060)	0.054 (0.040)	0.034 (0.042)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Household controls	No	No	Yes	Yes	No	No	Yes	Yes
Labor income	No	No	No	Yes	No	No	No	Yes
Nobs	5,385	5,385	5,385	5,385	5,385	5,385	5,385	5,385
Adjusted R <sup>2</sup>	0.142	0.214	0.416	0.440	0.081	0.124	0.319	0.333

**Table 3 (cont.).** Estimated effect of EU enlargement on the log monthly consumption expenditure of immigrant households from new EU member countries (2004-2012), pre-trends and persistence

	Panel C. Housing				Panel D. Transportation, leisure, installment purchases and debt			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
new EU x year 2005	-0.042 (0.117)	-0.066 (0.110)	-0.052 (0.101)	-0.055 (0.096)	0.043 (0.035)	0.036 (0.036)	0.047 (0.037)	0.042 (0.039)
new EU x year 2006	0.041 (0.073)	0.022 (0.052)	0.014 (0.049)	-0.002 (0.050)	0.055 (0.046)	0.053 (0.045)	0.051 (0.048)	0.024 (0.055)
new EU x year 2007	0.054 (0.084)	0.074 (0.059)	0.071 (0.055)	0.046 (0.058)	0.195*** (0.037)	0.215*** (0.044)	0.214*** (0.043)	0.174*** (0.043)
new EU x year 2008	0.053 (0.042)	0.060 (0.040)	0.016 (0.048)	0.002 (0.051)	0.109* (0.057)	0.137** (0.065)	0.111* (0.067)	0.088 (0.075)
new EU x year 2009	0.057 (0.093)	0.054 (0.088)	0.049 (0.068)	0.027 (0.067)	0.174*** (0.047)	0.189*** (0.056)	0.192*** (0.066)	0.156** (0.069)
new EU x year 2010	0.182** (0.073)	0.172** (0.076)	0.156** (0.062)	0.123** (0.060)	0.122** (0.061)	0.136** (0.062)	0.129** (0.061)	0.076 (0.061)
new EU x year 2011	0.052 (0.053)	0.020 (0.056)	0.007 (0.055)	-0.014 (0.057)	-0.006 (0.066)	-0.010 (0.073)	-0.010 (0.066)	-0.044 (0.073)
new EU x year 2012	0.140* (0.084)	0.103 (0.090)	0.119** (0.057)	0.099* (0.055)	0.120* (0.070)	0.124 (0.078)	0.131* (0.071)	0.099 (0.073)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Household controls	No	No	Yes	Yes	No	No	Yes	Yes
Labor income	No	No	No	Yes	No	No	No	Yes
Nobs	5,385	5,385	5,385	5,385	5,385	5,385	5,385	5,385
Adjusted R <sup>2</sup>	0.129	0.199	0.334	0.345	0.095	0.118	0.162	0.188

Data source: Institute for Multicultural Studies (ISMU) surveys 2004-2012. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Two-way clustered standard errors (at Italian province of residence and at country of origin level) are in parentheses (121 clusters). All specifications include year, country of origin and Italian province of residence fixed effects, and a constant term. Individual controls include respondent's gender, age, age squared, dummies for education level (none, primary, secondary, tertiary), and years of residence in Italy. Household controls include an indicator for having a spouse living abroad, number of household members, number of children, number of cohabiting children, number of cohabiting non adult children, and a dummy for living in own property in Italy. Labor income is the average monthly labor income (net of taxes) of the respondent. See Data Appendix for variable definitions and sample restrictions.

**Table 4.** Estimated effect of EU enlargement on the labor market outcomes of immigrant households from new EU member countries (2001-2012), pre-trends and persistence

	Labor force participation		(Including self-employed)		(All employees)		Informal sector		(Formal sector employees)	
	(1)	(2)	Employment	Log labor income	(3)	(4)	(5)	(6)		
new EU x year 2002	0.023 (0.036)	-0.021 (0.059)	-0.024 (0.041)	0.141** (0.065)	0.013 (0.022)	0.124* (0.072)				
new EU x year 2003	0.047* (0.025)	0.045 (0.051)	0.015 (0.026)	0.008 (0.032)	0.003 (0.025)	0.069 (0.068)				
new EU x year 2004	0.035 (0.025)	0.033 (0.041)	-0.076 (0.064)	0.029 (0.036)	-0.023 (0.069)	-0.020 (0.064)				
new EU x year 2005	0.069* (0.040)	0.063 (0.079)	0.022 (0.041)	-0.032 (0.049)	-0.021 (0.031)	0.041 (0.053)				
new EU x year 2006	0.080 (0.050)	0.084 (0.071)	0.044* (0.023)	0.060 (0.049)	0.015 (0.037)	-0.013 (0.061)				
new EU x year 2007	0.064** (0.032)	0.073 (0.059)	0.079*** (0.021)	-0.084** (0.036)	0.051* (0.027)	0.000 (0.042)				
new EU x year 2008	0.075* (0.042)	0.036 (0.069)	0.030 (0.027)	-0.105*** (0.038)	0.001 (0.021)	0.120*** (0.040)				
new EU x year 2009	0.085*** (0.033)	0.081 (0.081)	0.084** (0.033)	-0.134*** (0.050)	0.022 (0.039)	0.107*** (0.037)				
new EU x year 2010	0.069** (0.033)	0.099 (0.062)	0.118*** (0.037)	-0.174*** (0.044)	0.034 (0.044)	0.056 (0.053)				
new EU x year 2011	0.043 (0.040)	0.083 (0.063)	0.051 (0.051)	-0.121*** (0.043)	-0.033 (0.057)	0.044 (0.082)				
new EU x year 2012	0.087* (0.045)	0.075 (0.048)	0.044 (0.057)	-0.064* (0.034)	0.011 (0.043)	0.072 (0.060)				
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes				
Country of origin dum.	Yes	Yes	Yes	Yes	Yes	Yes				
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes				
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes				
Nobs	10,523	10,523	6,288	6,288	4,638	4,638				
Adjusted R <sup>2</sup>	0.194	0.178	0.290	0.231	0.271	0.075				

Data source: Institute for Multiethnic Studies (ISMU) surveys 2001-2012. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Two way clustered standard errors (at Italian province of residence and at country of origin level) are in parentheses (121 clusters). All specifications include a constant term, year, country of origin and Italian province of residence fixed effects. Individual controls include respondent's sex, age, age squared, dummies for education level (none, primary, secondary, tertiary), and years of residence in Italy. See Data Appendix for the remaining sample restrictions and variable definitions.

**Table 5.** Estimated effect of EU enlargement on the log monthly consumption expenditure of immigrant households from new EU member countries (2006-2007), immigrants who were documented and working formally before accession

	Total consumption	Food, clothing, and other basic needs	Housing	Transportation, leisure, installment purchases and debt
	(1)	(2)	(3)	(4)
post	0.046 (0.030)	0.087* (0.051)	0.006 (0.044)	0.038 (0.030)
new EU x post	0.080*** (0.021)	0.063 (0.061)	0.056 (0.061)	0.127*** (0.041)
Country of origin dum.	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes
Labor income	Yes	Yes	Yes	Yes
Nobs	801	801	801	801
Adjusted R <sup>2</sup>	0.518	0.426	0.381	0.218

Data source: Institute for Multiethnic Studies (ISMU) surveys 2006 and 2007. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Two-way clustered standard errors (at Italian province of residence and at country of origin level) are in parentheses (88 clusters). All specifications include country of origin and Italian province of residence fixed effects, and a constant term. Individual controls include respondent's gender, age, age squared, dummies for education level (none, primary, secondary, tertiary), and years of residence in Italy. Household controls include an indicator for having a spouse living abroad, number of household members, number of children, number of cohabiting children, number of cohabiting non-adult children, and a dummy for living in own property in Italy. Labor income is the average monthly labor income (net of taxes) of the respondent. Sample is restricted to documented immigrants who reported in 2007 to have a valid residence permit for (dependent) work. See Data Appendix for the remaining sample restrictions and variable definitions.

**Table 6.** Estimated effect of EU enlargement on the labor market outcomes of immigrant households from new EU member countries (2006-2007), immigrants who were documented and working formally before accession

	Labor income (in log)	Permanent contract
	(1)	(2)
post	0.005 (0.027)	-0.096*** (0.024)
new EU x post	0.022 (0.038)	0.039 (0.061)
Country of origin dum.	Yes	Yes
Province dummies	Yes	Yes
Individual controls	Yes	Yes
Nobs	801	801
Adjusted R <sup>2</sup>	0.148	0.113

Data source: Institute for Multiethnic Studies (ISMU) surveys 2006 and 2007. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Two-way clustered standard errors (at Italian province of residence and at country of origin level) are in parentheses (88 clusters). All specifications include a constant term, country of origin and Italian province of residence fixed effects. Individual controls include respondent's sex, age, age squared, dummies for education level (none, primary, secondary, tertiary), and years of residence in Italy. Sample is restricted to documented immigrants who reported in 2007 to have a valid residence permit for (dependent) work. See Data Appendix for the remaining set of sample restrictions and variable definitions.



**Table 7.** Estimated effect of EU enlargement on the labor market outcomes of immigrant households from new EU member countries (2001-2012), immigrants who were working formally before accession

	Monthly wage (in log)	Daily wage (in log)	Permanent contract
	(1)	(2)	(3)
new EU x year 2002	-0.003 (0.008)	-0.001 (0.008)	0.020 (0.012)
new EU x year 2003	0.010 (0.011)	0.000 (0.010)	0.015 (0.016)
new EU x year 2004	-0.001 (0.013)	-0.007 (0.012)	0.019 (0.017)
new EU x year 2005	0.013 (0.015)	0.011 (0.012)	0.022 (0.018)
new EU x year 2006	0.002 (0.016)	0.007 (0.013)	0.023 (0.019)
new EU x year 2007	-0.000 (0.016)	-0.000 (0.013)	0.032 (0.018)
new EU x year 2008	0.008 (0.017)	-0.004 (0.014)	0.041* (0.019)
new EU x year 2009	0.009 (0.018)	0.003 (0.015)	0.038* (0.020)
new EU x year 2010	0.001 (0.018)	-0.008 (0.014)	0.039* (0.020)
new EU x year 2011	-0.003 (0.018)	-0.008 (0.014)	0.051** (0.021)
new EU x year 2012	0.019 (0.019)	0.007 (0.014)	0.037 (0.021)
Year FE	Yes	Yes	Yes
Worker FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Nobs	38,081	38,081	38,081
Adjusted R <sup>2</sup>	0.603	0.681	0.697

Data source: Italian Social Security (INPS) records 2001-2012. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Standard errors clustered at the worker and year level are in parentheses. All specifications include year, worker and firm fixed effects. Sample includes immigrants that work in a firm located in Lombardy and appeared at least once in the social security records before 2007 with less than 10 years of experience.

**Table 8.** Estimated effect of EU enlargement on savings and remittances of immigrant households from new EU member countries (2004-2012)

	OLS					
	Logarithm (amount+1)			Linear probability model		
	Savings (1)	Remittances (2)	Savings and remittances (3)	Prob(Save) (4)	Prob(Remit) (5)	Prob(Save or remit) (6)
new EU x year 2005	0.597 (0.499)	-0.217 (0.264)	0.275 (0.262)	0.106 (0.095)	-0.034 (-0.058)	0.048 (0.047)
new EU x year 2006	-0.132 (0.305)	-0.631* (0.325)	-0.309 (0.413)	-0.029 (0.060)	-0.126 (0.069)	-0.056 (0.071)
new EU x year 2007	0.277 (0.409)	-0.136 (0.302)	0.032 (0.407)	0.029 (0.078)	-0.032 (0.061)	-0.023 (0.062)
new EU x year 2008	-0.125 (0.294)	-0.051 (0.135)	0.053 (0.246)	-0.059 (0.057)	-0.006 (0.028)	-0.008 (0.044)
new EU x year 2009	0.178 (0.336)	-0.171 (0.316)	0.269 (0.327)	0.010 (0.062)	-0.044 (0.063)	0.032 (0.062)
new EU x year 2010	-0.136 (0.358)	-0.757*** (0.177)	-0.368 (0.253)	-0.073 (0.053)	-0.174*** (0.039)	-0.113*** (0.037)
new EU x year 2011	0.309 (0.333)	0.073 (0.273)	0.235 (0.376)	0.032 (0.065)	0.013 (0.050)	0.020 (0.067)
new EU x year 2012	-0.677* (0.404)	-0.468 (0.332)	-0.753* (0.181)	-0.139* (0.074)	-0.099 (0.066)	-0.140*** (0.032)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin dum.	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes	Yes	Yes
Labor income	Yes	Yes	Yes	Yes	Yes	Yes
Nobs	4,233	4,233	4,233	4,233	4,233	4,233
Adjusted R <sup>2</sup>	0.163	0.208	0.209	0.136	0.173	0.159

Data source: Institute for Multiethnic Studies (ISMU) surveys 2004-2012. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Two-way clustered standard errors (at Italian province of residence and at country of origin level) are in parentheses (121 clusters). All specifications include year, country of origin and Italian province of residence fixed effects, and a constant term. Individual controls include respondent's gender, age, age squared, dummies for education level (none, primary, secondary, tertiary), and years of residence in Italy. Household controls include an indicator for having a spouse living abroad, number of household members, number of children, number of cohabiting children, number of cohabiting non adult children, and a dummy for living in own property in Italy. Labor income is the average monthly labor income (net of taxes) of the respondent. See Data Appendix for variable definitions and sample restrictions.

**Table 9.** Robustness checks: Estimated effect of EU enlargement on the log monthly total consumption expenditure of immigrants from new EU member countries (2004-2012)

	Arrived in Italy before 2006	Arrived in Italy before 2005	Arrived in Italy before 2004	Equivalized consumption standard OECD scale <sup>a</sup>	Equivalized consumption modified OECD scale <sup>b</sup>	Equivalized consumption ISEE scale <sup>c</sup>
	(1)	(2)	(3)	(4)	(5)	(6)
new EU x year 2005	-0.001 (0.040)	-0.004 (0.040)	-0.020 (0.041)	0.024 (0.048)	0.014 (0.045)	0.020 (0.045)
new EU x year 2006	0.016 (0.034)	0.017 (0.038)	0.004 (0.036)	0.006 (0.049)	0.007 (0.043)	0.004 (0.045)
new EU x year 2007	0.101*** (0.032)	0.106*** (0.033)	0.079** (0.036)	0.106*** (0.029)	0.103*** (0.027)	0.107*** (0.027)
new EU x year 2008	0.028 (0.030)	0.015 (0.026)	0.002 (0.031)	-0.014 (0.062)	-0.008 (0.053)	0.001 (0.050)
new EU x year 2009	0.054** (0.024)	0.042 (0.034)	0.033 (0.030)	0.056 (0.042)	0.052 (0.036)	0.048 (0.037)
new EU x year 2010	0.121*** (0.044)	0.120*** (0.040)	0.123*** (0.044)	0.102*** (0.036)	0.104*** (0.036)	0.100*** (0.035)
new EU x year 2011	0.028 (0.025)	-0.002 (0.031)	-0.022 (0.038)	0.030 (0.025)	0.028 (0.023)	0.025 (0.026)
new EU x year 2012	0.075** (0.033)	0.065* (0.039)	0.055 (0.047)	0.086** (0.034)	0.081** (0.032)	0.084*** (0.031)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin dum.	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes	Yes	Yes
Labor income	Yes	Yes	Yes	Yes	Yes	Yes
Nobs	5,060	4,611	4,166	5,385	5,385	5,385
Adjusted R <sup>2</sup>	0.450	0.458	0.465	0.226	0.215	0.231

**Table 9 cont.** Robustness checks: Estimated effect of EU enlargement on the log monthly total consumption expenditure of immigrants from new EU member countries (2004-2012)

	Alternative control group (A8 countries) (7)	Definition of immigrant household (8)	Clustering standard errors (9)	Accounting for business cycle (10)	Accounting for changes in household structure (11)
new EU x year 2005	0.066 (0.106)	-	-0.001 [-0.068,0.064]	0.013 (0.050)	0.002 (0.050)
new EU x year 2006	0.098 (0.096)	-	0.010 [-0.024,0.047]	0.007 (0.037)	0.008 (0.035)
new EU x year 2007	0.086* (0.045)	0.101*** (0.025)	0.103*** [0.058,0.149]	0.093** (0.041)	0.090*** (0.035)
new EU x year 2008	0.099 (0.109)	-0.011 (0.047)	0.015 [-0.050,0.080]	0.045 (0.028)	0.018 (0.037)
new EU x year 2009	0.024 (0.071)	0.048* (0.028)	0.042 [-0.012,0.097]	0.044 (0.034)	0.028 (0.032)
new EU x year 2010	0.153** (0.074)	0.100*** (0.038)	0.114*** [0.071,0.165]	0.140*** (0.051)	0.101** (0.050)
new EU x year 2011	0.010 (0.073)	0.033 (0.039)	0.031*** [-0.013,0.074]	0.039 (0.052)	0.014 (0.034)
new EU x year 2012	0.131** (0.063)	0.091*** (0.035)	0.081*** [0.021,0.141]	0.093*** (0.036)	0.062** (0.031)
Year dummies	Yes	Yes	Yes	Yes	Yes
Country of origin dum.	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes	Yes
Labor income	Yes	Yes	Yes	Yes	Yes
Nobs	2,209	3,941	5,385	3,815	5,385
Adjusted R <sup>2</sup>	0.443	0.421	0.440	0.546	0.448

Data source: Institute for Multiethnic Studies (ISMU) surveys 2004-2012. \* p<0.01, \*\* p<0.05, \*\*\* p<0.01. Notes: Sample is restricted to those who arrived in Italy before 2006 in column (1), before 2005 in column (2), before 2004 in column (3), and before 2007 in columns (4)-(11). Household controls exclude number of household members, number of cohabiting children and number of cohabiting non-adult children in columns (4)-(6). In columns (3)-(6) the dependent variable is log monthly equalized consumption expenditure calculated by using different weightings for each household member: <sup>a</sup>1.0 to the first adult; 0.7 to the second and each subsequent adult; 0.5 to each non-adult child (younger than 18). <sup>b</sup>1.0 to the first adult; 0.5 to the second and each subsequent adult; 0.3 to each non-adult child (younger than 18). <sup>c</sup>1.0 to the first person; 0.57 to the second; 0.47 to the third, 0.42 to the fourth; 0.39 to the fifth; and 0.35 to the subsequent persons. In column (7) the control group consists of nationals of Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia instead. In column (8) the sample is restricted to single respondents or respondents who have a cohabiting partner from the same country of origin (only available in survey years 2006-2012). Figures in [ ] are confidence intervals obtained by clustering standard errors at the country of origin level (11 clusters) using the wild bootstrap method (1000 replications) for small number of clusters. In addition to individual and household controls, and labor income, column (10) includes the interaction between province and year and occupation (only available for employed individuals) and year fixed effects and column (11) includes the interaction between having a spouse abroad and year and number of cohabiting children and year fixed effects. For the remaining definitions, see Table 3 notes.

**Table 10.** Estimated effect of EU enlargement on consumption of immigrant households from new EU member countries (2004-2012)  
Heterogeneity by years of residence

	(1)	(2)	(3)
	Immigrants with less than 5 years of residence in 2007	Immigrants with 5-10 years of residence in 2007	Immigrants with Italian citizenship or with more than 10 years of residence in 2007
new EU x post	0.076** (0.031)	0.031 (0.028)	-0.052 (0.036)
Year dummies	Yes	Yes	Yes
Country of origin dum.	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes
Household controls	Yes	Yes	Yes
Labor income	Yes	Yes	Yes
Nobs	2,338	2,645	2,393
Adjusted R <sup>2</sup>	0.435	0.450	0.409

Data source: Institute for Multiethnic Studies (ISMU) surveys 2004-2012. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Two-way clustered standard errors (at Italian province of residence and at country of origin level) are in parentheses (121 clusters). Immigrants with 5-10 years of residence are eligible for permanent residence permit while immigrants with more than 10 years of residence are eligible for the Italian citizenship. All specifications include year, country of origin and Italian province of residence fixed effects, and a constant term. Individual controls include respondent's gender, age, age squared, dummies for education level (none, primary, secondary, tertiary), and years of residence in Italy. Household controls include an indicator for having a spouse living abroad, number of household members, number of children, number of cohabiting children, number of cohabiting non adult children, and a dummy for living in own property in Italy. Labor income is the average monthly labor income (net of taxes) of the respondent. See Data Appendix for variable definitions and sample restrictions.

# Appendix

## Data

### ISMU data

Our main data source is an annual survey launched in 2001 by a non-governmental organization, the Institute for Multiethnic Studies (ISMU) to study the foreign population residing in the Lombardy region of Italy. Each survey takes place between May and mid July and consists of a random sample of about 8,000 immigrants, who are aged 15 and over and reside in Lombardy at the time of the interview. Its two-stage sampling scheme, the Centre Sampling Method (Baio et al., 2011), was specifically designed to collect information on a representative sample of both documented and undocumented immigrants. At the first stage municipalities are selected according to their share of immigrants, their socio-economic situation and their demographic representativeness at the regional level. At the second stage, for each municipality a set of ‘aggregation centers’ that the target population frequently visit (e.g. mosques, churches, language centers, etc.) are identified and immigrants are randomly selected in each center. Interviewees then are asked to answer a set of questions through a face-to-face interview by interviewers with a foreign background, who have undergone specific training and emphasize the independence of ISMU from the government at the beginning of the interview.

The statistical unit of analysis in the ISMU surveys is the individual and data include detailed information on personal characteristics such as country of origin, whether the respondent has a valid residence permit or not, type of residence permit, age, gender, education, marital status, years of residence in Italy, as well as on labor market characteristics of employed respondents such as type of employment (self-employed/employee), occupation, and sector (informal/formal) of employment, labor income, as well as some information on the household characteristics (e.g. average monthly household expenditure, household size, number of children, whether the spouse lives with the respondent, whether the type of accommodation is own property).

We restrict our sample to immigrants from Romania and Bulgaria (treatment group) and from Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, and Turkey (control group) who arrived in Italy before 2007, who do not hold Italian citizenship by the time of the interview and with no more than ten years of residence in

Italy by the time of the EU accession. In our main analysis we use data from the 2004-2012 surveys as information on household consumption expenditure is available only after 2004, whereas information on labor market outcomes is available also in 2001-2003. Thus, our labor market analysis utilizes the 2001-2012 survey data.

Table A1 displays the average characteristics of the immigrants in the ISMU survey and in the official registry of immigrants residing in Lombardy in 2006 provided by the Italian National Institute of Statistics (ISTAT).<sup>50</sup> The comparison of columns 1 and 2 confirms that the ISMU survey is representative of the immigrant population in Lombardy in terms of nationality and gender.

### **Italian Social Security (INPS) records**

The source for the data consists of social security payments made by legal entities to the Italian National Social Security Institute (INPS) for all employees with open-ended (permanent), fixed-term (temporary) and apprenticeship contracts. From this master data, INPS extracts two datasets which can be linked to each other. The first consists of the universe of firms with at least one employee at some point during a given calendar year and provides data at the establishment level. The second consists of the employment histories of all workers born on the first or the ninth day of each month (24 dates). The worker extraction provides information on demographics, annual gross wages, the number of months and days worked, the type of employment contract (permanent or temporary) and whether the job is full time or part time. We construct daily (monthly) wages by dividing annual gross wages with the number of days (months) worked and we express the wages of part-time workers in full-time equivalent units. In our analysis, we restrict the sample to immigrants from Romania and Bulgaria (treatment group) and from Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, and Turkey (control group) that work in a firm located in Lombardy and appear at least once in the Social Security records before 2007 with less than 10 years of experience. In this way, we ensure the comparability of the results with the estimates obtained using the ISMU survey. Furthermore, we consider workers aged between 20 and 64 that have worked for at least 15 days each year<sup>51</sup> so as to have a well-defined measure of wage even for immigrant workers with weak labor market attachments and to exclude possible students or retirees.

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<sup>50</sup>We report these statistics for 2006, which is the year before the EU enlargement.

<sup>51</sup>We get very similar results if we increase the threshold to 20 or 30 days worked per year.

## **Survey on Income and Life Conditions of Households with Foreigners**

As the ISMU data do not contain any information on mortgages, we complement our analysis using data from the Survey on Income and Life Conditions of Households with Foreigners, which is the European Union Statistics on Income and Living Conditions (EU-SILC) Italian Module on Foreign Population that was collected by the Italian Institute of Statistics (ISTAT) in 2009. The survey has been conducted only once and followed closely the design of the EU-SILC but with a sample exclusively composed of households with at least one foreigner (who is residing in Italy and do not have Italian citizenship). The sample includes 6,014 families and 15,036 individuals (9,243 of at least 15 years old at the end of the income reference period) were surveyed in all the Italian regions. The content of the questionnaire followed closely that of the EU-SILC 2009 survey, with some additional questions particularly relevant for the foreign population. The survey contains information on whether households have a mortgage, and if they do, information on the year that they obtained it (see, for more information, <https://www.istat.it/it/archivio/52405>).

In our analysis, we consider only household heads and restrict our sample to immigrants from Romania and Bulgaria (treatment group) and from Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, and Turkey (control group) who arrived in Italy before 2007, who do not hold Italian citizenship by the time of the interview and with no more than ten years of residence in Italy by the time of the EU accession.



**Table A1.** Representativeness of the ISMU survey

	ISMU	ISTAT
	(1)	(2)
By gender (%)		
Males	52.5	58.6
By nationality (%)		
Treated		
Romania	7.7	5.8
Bulgaria	0.8	0.6
Control		
Albania	10.5	9.0
Serbia and Montenegro	1.3	1.2
Moldova	1.1	2.0
Macedonia	1.0	0.5
Turkey	0.7	0.8
Bosnia-Erzegovina	0.6	0.5
Croatia	0.4	0.5

Data source: Institute for Multiethnic Studies (ISMU) survey 2006

and official registry data (<http://demo.istat.it/archivio.html>).

**Table A2.** ISMU data, variable definitions

Variable	Type	Definition
<hr/> Individual characteristics <hr/>		
Country of origin	categorical	Country of origin of the respondent
Gender	binary	$\left\{ \begin{array}{l} 0 \text{ if the respondent is a male} \\ 1 \text{ if the respondent is a female} \end{array} \right.$
Age	continuous	in years (15+)
Education	categorical	$\left\{ \begin{array}{l} 1 \text{ None} \\ 2 \text{ Primary/Compulsory education} \\ 3 \text{ Secondary education} \\ 4 \text{ Tertiary education or above} \end{array} \right.$
Years of residence	continuous	years of residence in Italy
Documented	binary	$\left\{ \begin{array}{l} 0 \text{ if the respondent has no valid residence permit} \\ 1 \text{ if the respondent reported to have a valid residence permit} \\ \text{or currently renewing the temporary residence permit, or} \\ \text{is an applicant for legalization} \end{array} \right.$
<hr/> Household characteristics <hr/>		
Number of household members	continuous	Total number of family members living with the respondent in Italy that the reported household consumption expenditures correspond to
Children	binary	$\left\{ \begin{array}{l} 0 \text{ if number of children is zero} \\ 1 \text{ if number of children is positive} \end{array} \right.$
Number of children	continuous	Total number of children (living in Italy or abroad)
N. of cohabiting children	continuous	Number of children living with the respondent
N. of cohabiting non-adult children	continuous	Number of children younger than 18, living with the respondent
Spouse living abroad	binary	$\left\{ \begin{array}{l} 0 \text{ if the respondent is single or is married and the spouse} \\ \text{is listed among the household members in Italy} \\ 1 \text{ if the respondent is married but the spouse is not listed} \\ \text{among the household members in Italy} \end{array} \right.$
Living in own property	binary	$\left\{ \begin{array}{l} 0 \text{ if type of accommodation the respondent is} \\ \text{living in is not own property} \\ 1 \text{ if type of accommodation the respondent is} \\ \text{living in is own property} \end{array} \right.$

**Table A2 (cont.).** ISMU data, variable definitions

Variable	Type	Definition
Labor market characteristics		
Labor income	continuous	net of taxes, Euros per month (0 if not employed)
In the labor force	binary	$\left\{ \begin{array}{l} 0 \text{ if the respondent reported to be a} \\ \text{student/homemaker/retired} \\ 1 \text{ if the respondent reported to be} \\ \text{unemployed/an employee/self-employed} \end{array} \right.$
Employed	binary	$\left\{ \begin{array}{l} 0 \text{ if the respondent is unemployed/student/homemaker/retired} \\ 1 \text{ if the respondent is an employee/self-employed} \end{array} \right.$
Employee	binary	$\left\{ \begin{array}{l} 0 \text{ if the respondent is self-employed} \\ 1 \text{ if the respondent is an employee} \end{array} \right.$
Formal sector	binary	$\left\{ \begin{array}{l} 0 \text{ if the respondent is an employee and reported to work} \\ \text{in the formal sector} \\ 1 \text{ if the respondent is an employee and reported to work} \\ \text{in the informal sector} \end{array} \right.$
Permanent contract	binary	$\left\{ \begin{array}{l} 0 \text{ if the respondent is an employee and reported to work} \\ \text{under a temporary contract} \\ 1 \text{ if the respondent is an employee and reported to work} \\ \text{under a permanent contract} \end{array} \right.$

**Table A3.** Italian Social Security (INPS) records, sample means

	Before EU enlargement		After EU enlargement	
	Romanians & Bulgarians (1)	Immigrants from EU candidate countries (2)	Romanians & Bulgarians (3)	Immigrants from EU candidate countries (4)
Monthly labor income (in Euros)	1380.33 (479.31)	1331.29 (439.06)	1710.32 (616.99)	1651.86 (577.02)
Daily labor income (in Euros)	59.66 (19.29)	57.70 (17.98)	73.49 (23.42)	71.93 (22.25)
Permanent contract (dummy)	0.79	0.85	0.81	0.85
Female (dummy)	0.35	0.20	0.41	0.23
Age (in years)	33.39 (8.09)	32.20 (8.52)	37.71 (8.21)	36.05 (8.73)
Number of observations	7,034	9,401	9,285	12,361

Data source: Italian Social Security (INPS) records 2001-2012. Sample includes immigrants from Romania, Bulgaria and candidate countries (Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, and Turkey) who work in a firm located in Lombardy and appear at least once in the social security records before 2007 with less than 10 years of experience. Standard deviations of the continuous variables are in parentheses.

**Table A4.** Relative size of treatment and control groups before 2007 by Italian province of residence

Italian province of residence	Before the EU enlargement		Number of observations
	% treated	% control	
Province of Cremona	49.54	50.46	343
Metropolitan City of Milan	47.94	52.06	247
Province of Pavia	45.60	54.40	125
Province of Sondrio	43.20	56.80	922
Province of Mantua	41.67	58.33	300
Province of Lodi	41.58	58.42	383
Province of Varese	35.57	64.43	318
Province of Brescia	33.16	66.84	216
Province of Lecco	24.55	75.45	168
Province of Como	21.86	78.14	110
Province of Bergamo	21.00	79.00	202

Data source: Institute for Multiethnic Studies (ISMU) surveys 2004-2006. The sample includes immigrants who arrived in Italy before 2007, with no more than ten years of residence in Italy by 2007, who did not hold Italian citizenship by the time of the interview. Treated: Nationals of Romania and Bulgaria. Control: Nationals of Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, and Turkey.

**Table A5.** Fraction of treatment group by occupation, before and after the EU enlargement

Occupation	% treated		p.p. change in the fraction of treated
	Before 2007	After 2007	
White collar employees	26.32	45.16	18.85
Domestic workers (occasional)	41.46	51.64	10.17
Transport workers	36.99	46.39	9.40
Doctors and paramedics	40.00	49.18	9.18
Artisans	29.94	38.89	8.95
Cleaning workers	37.11	45.45	8.34
Prostitutes	41.67	50.00	8.33
Social field assistants	47.37	53.13	5.76
Workers in the tertiary sector	37.80	41.14	3.34
Secretaries	36.36	37.50	1.14
Intellectual workers	41.46	42.22	0.76
Construction workers	31.15	31.06	-0.08
Home assistants	77.51	77.40	-0.11
Catering/hotel workers	40.15	39.88	-0.26
Other occupations	53.57	53.16	-0.41
Skilled workers	33.02	30.43	-2.58
Workers in the secondary sector	40.00	35.83	-4.17
Workers in the primary sector	44.12	37.50	-6.62
Baby sitters	61.90	55.00	-6.90
Sales and service employees	43.55	33.11	-10.44
Domestic workers (full/part time)	65.22	52.56	-12.65
Commerce	50.00	27.42	-22.58
Switchboard operators	75.00	31.25	-43.75

Data source: Institute for Multiethnic Studies (ISMU) surveys 2004-2012. The sample includes immigrants who arrived in Italy before 2007, with no more than ten years of residence in Italy by 2007, who did not hold Italian citizenship by the time of the interview. Treated: Nationals of Romania and Bulgaria. Control: Nationals of Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, and Turkey.

p.p.: percentage points.

**Table A6.** Testing the validity of the research design: The effects of the EU enlargement on the composition of the treated and the control group

	% female	% youth (<30 years old)	% low educated (primary or none)	Average number of household members
new EU x post	0.031 (0.029)	-0.024 (0.021)	0.039 (0.032)	0.076 (0.092)
Year dummies	Yes	Yes	Yes	Yes
Country of origin dum.	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes
Nobs	5,385	5,385	5,385	5,385
Adjusted R <sup>2</sup>	0.045	0.034	0.081	0.103

Data source: Institute for Multiethnic Studies (ISMU) surveys 2004-2012. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

Two-way clustered standard errors (at Italian province of residence and at country of origin level) are in parentheses (121 clusters). All specifications include a constant term, year, country of origin and Italian province of residence fixed effects. See Data Appendix for variable definitions and sample restrictions.

**Table A7.** Differences in the intentions to leave Italy between immigrants from new EU and candidate countries (2010-2012)

Linear probability model	Intention to leave Italy	Intention to leave Italy	Intention to leave Italy
	pre 2007 arrivals	pre 2006 arrivals	pre 2005 arrivals
	(1)	(2)	(3)
new EU	0.009	0.011	0.010
	(0.016)	(0.017)	(0.020)
Year dummies	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes
Household controls	Yes	Yes	Yes
Nobs	1,246	1,123	941
Adjusted R <sup>2</sup>	0.040	0.046	0.053

Data source: Institute for Multiethnic Studies (ISMU) surveys 2010-2012. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

Two-way clustered standard errors (at Italian province of residence and at country of origin level) are in parentheses (121 clusters). All specifications include year and Italian province of residence fixed effects, and a constant term. Individual controls include respondent's gender, age, age squared, dummies for education level (none, primary, secondary, tertiary), and years of residence in Italy. Household controls include an indicator for having a spouse living abroad, number of household members, number of children, number of cohabiting children, and number of cohabiting non adult children. See Data Appendix for variable definitions and sample restrictions.



**Table A8.** Using selection on observables to assess the bias from unobservables

Restricted model		Full model	Total consumption
Table 3 Column 1	vs	Table 3 Column 4	7.13
Table 3 Column 2	vs	Table 3 Column 4	3.19
Table 3 Column 3	vs	Table 3 Column 4	3.72

Notes: Each cell of the table reports the ratio based on the coefficient estimate of the interaction between new EU and year 2007 from the corresponding restricted model (estimate of  $\gamma_0^R$  in equation 2,  $\hat{\gamma}_0^R$ ) and the full model (estimate of  $\gamma_0^F$  in equation 2,  $\hat{\gamma}_0^F$ ). The reported ratio is calculated as:  $\hat{\gamma}_0^F / (\hat{\gamma}_0^R - \hat{\gamma}_0^F)$ . See Table 3 for the description of the full set of controls included in each specification.

**Table A9.** Fraction of treatment and control groups with mortgage issued before and after the EU enlargement

	Treated	Control
% with a mortgage	5.06	4.95
% with a mortgage by year of issue		
2006	1.41	1.93
2007-2008	3.65	3.02
Total number of observations	830	469

Data source: Survey on Income and Life Conditions of Households with Foreigners 2009. The table presents weighted results (using EU-SILC Personal cross-sectional weights). The sample is restricted to household heads and includes immigrants from Romania and Bulgaria (treated) and from Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia, and Turkey (control) who arrived in Italy before 2007, who do not hold Italian citizenship by the time of the interview and with no more than ten years of residence in Italy by the time of the EU accession.

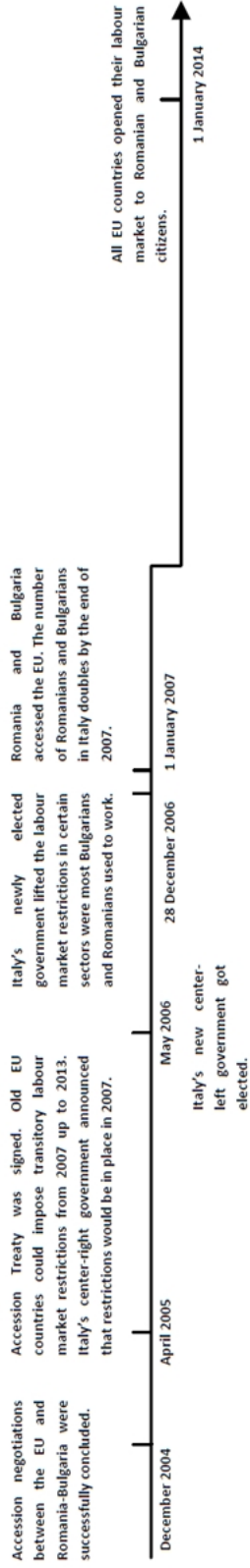
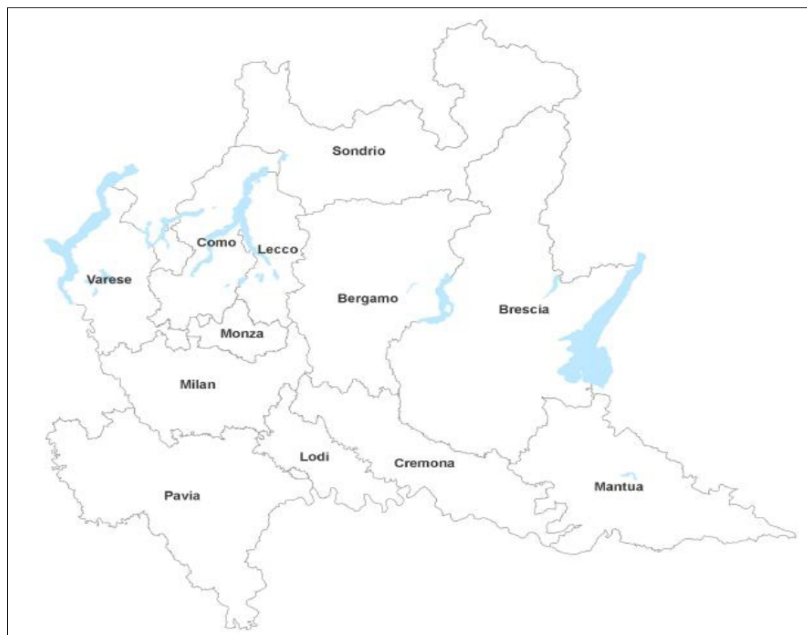


Figure A1. Timeline of events



a. Lombardy in Italy/Europe



b. Provinces of Lombardy

**Figure A2.** Lombardy region of Italy

Source: IRER (2010), The region of Lombardy, Italy: Self-Evaluation Report, OECD Reviews of Higher Education in Regional and City Development, IMHE.