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

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**Abstract.** This paper explores the impact of the 2007 European Union enlargement on the consumption behaviour 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 labour income by moving from the informal towards the formal economy, whereas immigrants who were already working

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legally in Italy benefited from the increased probability of getting a permanent contract. Enhanced employment stability in turn reduced the uncertainty about future labour income leading to an increase in documented immigrants' consumption expenditure.

*Résumé. Plus qu'un simple permis de travail : la citoyenneté européenne et le comportement de consommation des immigrants avec et sans papiers.* Cet article s'intéresse aux conséquences de l'élargissement de l'Union Européenne de 2007 sur le comportement de consommation des ménages d'immigrants. Grâce aux données d'une étude italienne exclusive, et nous appuyant sur la méthode des doubles différences, nous avons découvert que l'élargissement avait entraîné une hausse de la consommation des ménages d'immigrants en provenance des nouveaux pays membres, à court comme à moyen terme. Cet effet «d'élargissement» ne repose pas uniquement sur une simple régularisation puisqu'il concerne à la fois les immigrants avec et sans papiers, mais sur d'autres facteurs distincts. Grâce à des informations plus détaillées sur le statut juridique des immigrants (avec ou sans papiers) nous pouvons apporter un éclairage sur les mécanismes précis. À la suite de l'élargissement, et grâce à la transition de l'économie informelle à l'économie officielle, les immigrants anciennement sans papiers virent les revenus de leur travail augmenter. Dans le même temps, les immigrants travaillant déjà légalement en Italie purent profiter de meilleures possibilités d'obtenir un contrat à durée indéterminée. Cette stabilité d'emploi accrue a permis de réduire l'incertitude liée aux revenus du travail avec pour conséquence une hausse des dépenses de consommation des immigrants en situation régulière.

JEL classification: D12, E21, F22

## 1. Introduction

SINCE THE LIFE-CYCLE model developed by Modigliani and Brumberg (1954) and the permanent income hypothesis introduced by Friedman (1957), there have been many studies trying to understand how households' consumption responds to income changes.<sup>1</sup> One important testable implication of the life-cycle model/permanent income hypothesis is that consumption should respond to unpredictable changes in the variables about which the consumer is uncertain.

Despite the large literature on the economic analysis of immigration, little is known about immigrant households' consumption behaviour in the host economy and how it responds to changes in uncertainty. 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 native-born, which may affect their consumption behaviour.<sup>2</sup> On the one hand, undocumented

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1 Meghir (2004) and Jappelli and Pistaferri (2010) provide excellent surveys of this literature.

2 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.

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. 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 native-born in employment, wages and working conditions.<sup>3</sup> Thus, the EU accession plausibly implies an improvement in the employment prospects 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 labour market uncertainty coupled with a higher probability of getting a permanent contract may also boost household consumption expenditure through an increase in expected income stability in the future.<sup>4</sup> As a result, extending citizenship 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 behaviour 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>

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3 Article 45, Treaty on the Functioning of the European Union (ex article 39 of TEC and ex article 48 of EEC); see [https://eur-lex.europa.eu/eli/treaty/tfeu\\_2008/art\\_45/oj](https://eur-lex.europa.eu/eli/treaty/tfeu_2008/art_45/oj).

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

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

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

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 labour market consequences in Italy were not, and the EU accession unexpectedly implied for Romanians and Bulgarians full rights to work (see section 3 for a discussion).

Our unique dataset allows us to focus both on documented immigrants, for whom citizenship implies mainly that they do not need to renew their permits any more, and on undocumented immigrants, who benefited from legalization. Furthermore, detailed information on labour 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 labour income. We provide evidence that this was achieved mainly by moving from the informal towards the formal sector. Documented immigrants instead, increased mostly the consumption of durable goods. In their case, the underlying mechanism is a gradual increase in employment stability through permanent job contracts, which reduces the uncertainty about future labour income and thus, increases the propensity to consume. In other words, the explanations for the rise in consumption rest on two different mechanisms. First, workers move into better jobs (from informal into formal and from temporary into permanent). The potential rise in income from holding better jobs generates more spending on consumption. Second, workers are moving into work situations that confer more income stability, thus generating more consumption spending on account of a less pressing need to save for a rainy day. Consistent with this, we also find that the probability of holding savings and remitting goes down, in line with a reduced precautionary savings motive.<sup>8</sup> While legalization policies are usually difficult to implement

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7 A8 countries (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia) joined the EU in 2004.

8 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.



due to the high political cost entailed, our results imply that simplifying the bureaucratic procedure of work permits for documented immigrants may lead to similar consumption increases. The labour 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 behaviour of immigrants is scarce due mainly 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 behaviour 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 labour stability in turn decreased the uncertainty about future labour income, and thus increased the propensity to consume. Barigozzi and Speciale (2011) also focus on Italy and study the differences in the consumption behaviour of native-born, 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 show that the immigrants that benefited most from the EU enlargement were those with less than five 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 Italian citizenship.

Our findings also contribute to a very recent literature that studies the labour 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 labour 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 seems to hamper them (Ballatore et al. 2017). We also explore alternative explanations, such as easier access to credit, but the labour market channel remains the most plausible underlying mechanism.

## 2. Background

Immigration is considered to be a structural characteristic of the Italian society and labour market (Quassoli 1999). The empirical evidence shows that

the demand for immigrant workers in the Italian labour market is concentrated mainly 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 native-born 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 fewer opportunities for work-related training and career advancement compared with permanent contracts.<sup>9,10</sup>

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). 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 enter the country either without a permit or on a short-term visa (e.g., tourist or student visa) and then overstay despite having expired documents (Fasani 2015, Fullin and Reyneri 2011). They tend

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9 See Bentolila and Dolado 1994, Blanchard and Landier 2002, Bonet et al. 2013, Booth et al. 2002 and Dolado et al. 2002.

10 In the late 1980s, Italy was considered to have one of the strictest labour 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 be used only for seasonal work, specific projects or temporary replacement of absent workers (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; see <http://dati.istat.it/?lang=en>). While the extended use of temporary contracts allowed for more flexibility in the labour market, large differences in terms of employment protection legislation between permanent and temporary contracts have been a concern (Garibaldi and Taddei 2013).

11 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.

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>12</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 labour market outcomes than documented immigrants.<sup>13</sup>

### 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 labour market restrictions on Bulgarian and Romanian workers for up to seven years after accession. All EU states were required to open their labour 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. The majority of member states, including Italy, announced that would impose interim restrictions to protect their labour 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>15</sup>

However, just three days prior to the EU accession, on December 28, 2006, the newly elected, centre-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 labour

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12 A unique feature of our data is that we can observe both undocumented and documented 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.

13 See, for example, Amuedo-Dorantes et al. 2007, Borjas and Tienda 1993, Fasani 2015, Guriev et al. 2019, Kaushal 2006, Kossoudji and Cobb-Clark 2002.

14 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.

15 Note that work permits were not transferable across member states.



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>16</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 practice full rights to work in Italy.<sup>17</sup> Not surprisingly, the number of Romanian and Bulgarian residents in Italy has almost doubled between 2006 and 2007.<sup>18</sup>

The other countries that opened immediately their labour 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. 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 B1 in the online 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 online appendix A). 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 labour

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16 Italy fully liberalized its labour market for citizens of Romania and Bulgaria as of January 1, 2012.

17 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.

18 See Italian National Institute of Statistics, [www.demo.istat.it/archivio.html](http://www.demo.istat.it/archivio.html).

income.<sup>19</sup> Information on the residence permits allows 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 labour 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 other family members is limited and therefore we do not observe the employment status and the labour income of the spouse. Moreover, information on household income is available, but only in the period after the enlargement (2007 onwards) and not in the period before. Nevertheless, there is information available 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) whether the spouse is living with the respondent or abroad as well as 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 households' average 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, instalment purchases and debt.<sup>20,21</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

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19 The country of origin refers to the individual respondent rather than the whole household. We nevertheless 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 section 7).

20 Throughout the paper, we use the term “durables” to refer to category (iii) as it is likely to include large and long-term purchases such as cars or home appliances, which are usually paid for in instalments.

21 The exact wording of these questions (in Italian and its English translation) is presented in the online appendix table A2.

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 alternative models that take 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 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 for 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, which allow us to follow individuals over time, obtaining some additional evidence regarding the labour market outcomes (wages and type of contract).

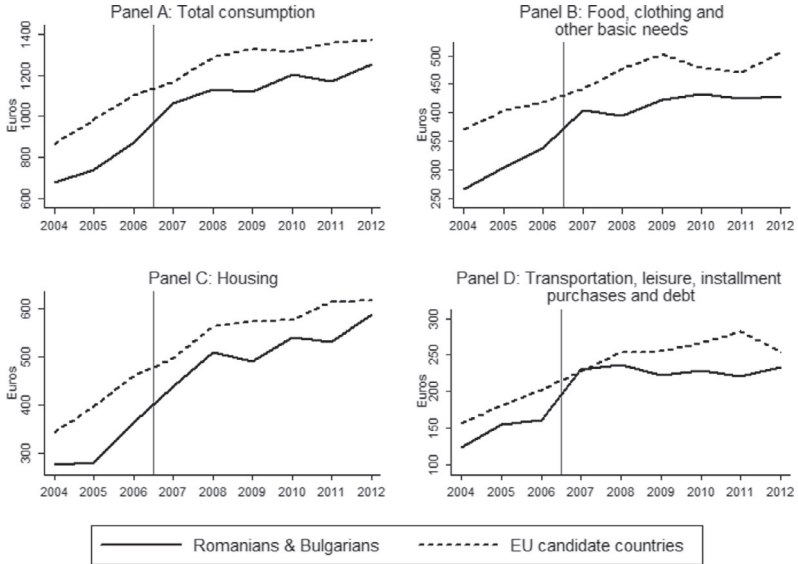
#### 4.2. Sample and identification

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 before the enlargement should be similar to those of Romanians and Bulgarians given their common migration choices.<sup>23</sup> There-

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22 See online appendix figure B2 for a map of Lombardy in Italy/Europe and its 11 (12 since 2009) provinces.

23 There is a growing body of empirical literature supporting the existence of a relationship between the migration decision and attitudes towards risk. For instance, Jaeger et al. (2010) use direct measures of attitudes towards risk from the 2004 wave of the German Socio-Economic Panel (SOEP) and find that being more willing to take risks is a positive, statistically significant and quantitatively important determinant of migration. Using the same data, Bonin et al. (2009) show that first-generation immigrants are more risk averse than native-born.



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

NOTES: 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 10 years of residence in Italy by the time of the EU accession. The vertical line represents the date of the EU accession of Romania and Bulgaria (January 1, 2007). See text for variable definitions.

DATA SOURCE: Institute for Multiethnic Studies (ISMU) 2004–2012 surveys

fore, immigrants from Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia and Turkey constitute our control group.

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 who arrived in Italy before 2007, i.e., before Romania and Bulgaria joined the EU. We also restrict our sample to immigrants who do not hold Italian citizenship by the time of the interview and with no more than 10 years of residence in Italy by the time of the EU accession since a non-EU citizen, having legally resided in Italy for 10 years, is eligible to apply for the Italian citizenship.<sup>24</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

24 We use this excluded group to perform a placebo exercise in section 7.

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 driven mainly by the increase in the expenditure on food, clothing and other basic needs and on transportation, leisure, instalment 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 online appendix table A3 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 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 have lower labour 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 labour 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

**TABLE 1**  
Sample means

	Before EU enlargement		After EU enlargement	
	Romanians and Bulgarians (1)	Immigrants from EU candidate countries (2)	Romanians and Bulgarians (3)	Immigrants from EU candidate countries (4)
Expenditure				
Total consumption	917.61 (433.31)	1074.42 (518.32)	1,280.61 (527.72)	1,339.31 (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, instalment purchases and debt	172.02 (109.24)	196.18 (124.26)	256.34 (179.61)	267.62 (214.92)
Individual				
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
Household				
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

(continued)



TABLE 1  
(Continued)

	Before EU enlargement		After EU enlargement	
	Romanians and Bulgarians (1)	Immigrants from EU candidate countries (2)	Romanians and Bulgarians (3)	Immigrants from EU candidate countries (4)
Labour market				
Monthly labour income (including zeros)	914.78 (496.92)	950.96 (604.02)	971.36 (604.08)	955.20 (637.24)
In the labour 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)	0.71	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

NOTES: Sample includes immigrants who arrived in Italy before 2007, with no more than 10 years of residence in Italy by 2007 and 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 online appendix A for variable descriptions.

DATA SOURCE: Institute for Multiethnic Studies (ISMU) surveys 2004–2012

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- and medium-term analyses

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:

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

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, instalment 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 one in the year of enlargement (2007) and zero 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 the number of non-adult children living with the respondent in Italy, an indicator for the spouse living abroad and an indicator for home ownership in Italy. In our full specification, we also include the respondent's average monthly labour 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>25</sup>

In equation (1), the coefficient  $\beta$  is the shared effect of the EU enlargement. The main coefficient of interest is the difference-in-differences coefficient  $\gamma$ , which compares the 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 labour income net of taxes.<sup>26</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.<sup>27</sup> The remaining panels of table 2 focus on broad categories of the

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25 In all specifications, unless stated otherwise, we follow Cameron et al. (2011) and use “cmgreg” command in Stata to cluster standard errors separately by province and country of origin (two-way clustering). This results in 88 clusters in the short-term analysis. Note that two-way clustering differs from clustering at the intersection of the two groupings. The latter would have been inadequate, since it imposes the restriction that observations are independent if they refer to people from the same country of origin but residing in different Italian provinces (see Bertrand et al. 2004 and Cameron and Miller 2015).

Nevertheless, in section 7, we also check the sensitivity of our results by clustering standard errors solely at the country of origin level (11 clusters) using the wild bootstrap method (Cameron et al. 2008) with 1,000 replications to account for the small number of clusters.

26 One drawback is that household income information is not available for survey years earlier than 2007. Therefore, we use the respondent's labour income as a proxy of the household income (the correlation coefficient between household income and respondent's labour income in our sample is around 0.27 for the years 2007–2012). Dropping the respondent's labour income from our preferred specification, leaves our main results unchanged.

27 As an additional robustness check, we performed two “placebo” exercises, in which we: (i) restrict the time period to (a) years 2005 to 2006 and (b) years 2004 to 2005 prior to enlargement, (ii) set the year 2006 (exercise 1) and the year 2005 (exercise 2), instead of year 2007, as post and (iii) set the year 2005 (exercise 1) and the year 2004 (exercise 2), instead of year 2006, as pre. Using



TABLE 2  
(Continued)

	Panel C. Housing				Panel D. Transportation, leisure, instalment 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
Labour income	No	No	No	Yes	No	No	No	Yes
No. of obs.	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

NOTES: \*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. Labour income is the average monthly labour income (net of taxes) of the respondent. See online appendix A for variable definitions.

DATA SOURCE: Institute for Multiethnic Studies (ISMU) surveys 2006 and 2007

consumption expenditure, i.e., basic need items (food and clothing), housing and durables (transportation, leisure, instalment 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%.

Next, we estimate a specification similar to equation (1) of the form

$$\ln(c_{icpt}) = \alpha + \gamma new EU_c \times post_t + \overbrace{X_{icpt}\theta}^{\text{individual controls}} + \underbrace{Z_{icpt}\varphi}_{\text{household controls}} + \underbrace{\phi_c}_{\text{country of origin FE}} + \underbrace{\eta_p}_{\text{province FE}} + \underbrace{\lambda_t}_{\text{year FE}} + \xi_{icpt}, \quad (2)$$

where we include observations from all available years, 2004–2012, and control for year fixed effects ( $\lambda_t$ ) 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). In equation (2),  $post_t$  is a dummy variable that takes the value one in the year of enlargement and afterwards (2007–2012), and zero otherwise. The terms  $new EU_c$  and  $post_t$  are not shown because their coefficients are absorbed by the country of origin ( $\phi_c$ ) and year fixed effects ( $\lambda_t$ ), respectively.

We focus on the estimated coefficient of the variable  $new EU_c \times post_t$ , which measures the medium-run average effect of the 2007 EU enlargement and present our results in table 3. The effects on total consumption, basic need items and durables are slightly smaller than the estimated short-run effects, but positive and statistically significant in line with the short-term analysis. The only exception to this is the effect on basic needs, which becomes insignificant when labour income is controlled for (panel B, column 4). Differently from the short-term results, we also detect a positive effect on housing when we consider up to six years after the enlargement. This suggests that immigrants from newly accessed countries also increase housing expenditures but the effect takes some time to materialize. To explore this possibility, in the next section, we examine the effect of the EU enlargement by using a year-by-year specification.

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the full specification, in both exercises the placebo effect on total consumption is statistically insignificant and close to zero, validating our analyses presented above (see online appendix table B1).



**TABLE 3**  
Estimated effect of EU enlargement on the log monthly consumption expenditure of immigrant households from new EU member countries (2004–2012), medium-term analysis

	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Panel A. Total consumption				Panel B. Food, clothing and other basic needs				
New EU x Post	0.078*** (0.022)	0.089*** (0.021)	0.076*** (0.021)	0.060*** (0.023)	0.062** (0.026)	0.071*** (0.025)	0.055*** (0.023)	0.040 (0.026)
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	No	Yes	Yes	No	Yes	Yes	Yes
Household controls	No	No	Yes	Yes	No	No	Yes	Yes
Labour income	No	No	No	Yes	No	No	No	Yes
No. of obs.	5,385	5,385	5,385	5,385	5,385	5,385	5,385	5,385
Adjusted R <sup>2</sup>	0.141	0.213	0.415	0.439	0.079	0.122	0.317	0.331
Panel C. Housing				Panel D. Transportation, leisure, instalment purchases and debt				
New EU x Post	0.075*** (0.031)	0.087*** (0.030)	0.073*** (0.032)	0.059* (0.023)	0.094** (0.038)	0.111*** (0.038)	0.104*** (0.037)	0.081** (0.039)
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	No	Yes	Yes	No	Yes	Yes	Yes
Household controls	No	No	Yes	Yes	No	No	Yes	Yes
Labour income	No	No	No	Yes	No	No	No	Yes
No. of obs.	5,385	5,385	5,385	5,385	5,385	5,385	5,385	5,385
Adjusted R <sup>2</sup>	0.127	0.198	0.333	0.344	0.094	0.116	0.160	0.186

NOTES: \*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 dummy 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. Labour income is the average monthly labour income (net of taxes) of the respondent. See online appendix A for variable definitions and sample restrictions.

DATA SOURCE: Institute for Multiethnic Studies (ISMU) surveys 2004–2012

## 5.2. Pre-trends and persistence

In order to test the validity of our analysis, we now adopt a year-by-year specification as in Autor (2003) that allows us to test for parallel trends but also to examine the persistence of the effect. For this purpose, we augment equation (1) with lags and leads of the treatment as given by equation (3):

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

where  $D_{icpt}(\cdot)$  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 4 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, instalment 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*). 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, the positive effect on housing expenditures emerges in the medium run (2010) in line with the results presented in table 3. 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 benefits for the immigrants of the new EU member countries is the right to work in all EU countries without the need of a work

TABLE 4

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)	0.033 (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
Labour income	No	No	No	Yes	No	No	No	Yes
No. of obs.	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

(continued)

**TABLE 4**  
(Continued)

	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	Panel C. Housing				Panel D. Transportation, leisure, instalment purchases and debt			
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)

(continued)

TABLE 4  
(Continued)

	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	Panel C. Housing				Panel D. Transportation, leisure, instalment purchases and debt			
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
Labour income	No	No	No	Yes	No	No	No	Yes
No. of obs.	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

NOTES: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . 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. Labour income is the average monthly labour income (net of taxes) of the respondent. See online appendix A for variable definitions and sample restrictions.

DATA SOURCE: Institute for Multiethnic Studies (ISMU) surveys 2004–2012

permit. As discussed in section 3, Italy had initially announced that it would impose interim restrictions to protect its labour 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 labour 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 labour 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 29% 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 5 presents the results of regressions for different labour market aspects.<sup>28</sup> We observe a positive labour 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). Moreover, even undocumented immigrants tend to work but in the shadow economy.<sup>29</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 labour income (column 3). The increase in the labour income is in line with Ruhs (2017), who finds that labour earnings of Eastern European immigrants in the UK have increased after the accession of their home countries in the EU.<sup>30</sup> Our data allow us to further explore whether the increase in the labour income that we observe in our setting has occurred by immigrants moving out of the shadow economy. Indeed, as shown

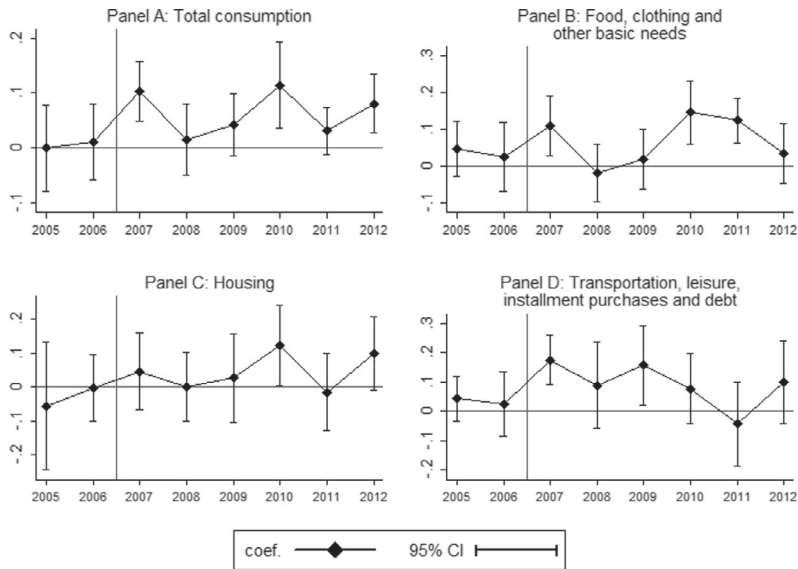
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28 The ISMU data contain information on labour market outcomes in all available waves (2001–2012). We estimate linear probability models for the probability of working informally and the probability of holding a permanent contract.

29 In our sample, 65% of all documented immigrants have a residence permit for work reasons, while 74% of all undocumented immigrants work and all do so in the informal sector.

30 While comparable long-term estimates are not available, Ruhs (2017) finds that the impact of gaining EU status on the earnings of A8 employees in the UK is in the order of 0.06 to 0.08 over a period of six to eight months. This is quite similar in magnitude to our results (captured by the coefficient estimate of new EU  $\times$  Year 2007 in table 5, column 3).





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

NOTE: 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 10 years of residence in Italy by the time of the EU accession and with non-missing information on all variables included in equation (3). 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 vertical line represents the date of the EU accession of Romania and Bulgaria (January 1, 2007).

DATA SOURCE: Institute for Multiethnic Studies (ISMU) 2004–2012 surveys

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.<sup>31,32</sup> We then repeat the analysis on labour income, but only for those employed in the formal sector, and the positive effects essentially disappear (column 5). This suggests that the large increase in labour income reported in column 3 could be indirectly attributed to undocumented immigrants moving out of the shadow economy. For formal sector employees, we find instead a significant

31 The variable informal sector takes the value one if an individual is working in the informal sector and zero if the individual is working in the formal sector.

32 As we discuss in section 7.2, social benefits such as welfare or unemployment benefits are unlikely to have played a role in the Italian context during the period of our analysis.

**TABLE 5**  
Estimated effect of EU enlargement on the labour market outcomes of immigrant households from new EU member countries (2001–2012)

	Labour force participation	(Including self-employed) Employment	(All employees)			(Formal sector employees)	
			Log labour income	Informal sector	Log labour income	Permanent contract	
	(1)	(2)	(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)	

(continued)

TABLE 5  
(Continued)

	Labour force (Including self-employed)		(All employees)		(Formal sector employees)	
	Labour force participation	Employment	Log labour income	Informal sector	Log labour income	Permanent contract
	(1)	(2)	(3)	(4)	(5)	(6)
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
No. of obs.	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

NOTES: \*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. Columns 3 to 6 include only individuals with available information on their labour income, sector of employment (formal/informal) and whether their job is permanent or temporary. See online appendix A for the remaining sample restrictions and variable definitions.

DATA SOURCE: Institute for Multiethnic Studies (ISMU) surveys 2001–2012

**TABLE 6**

Estimated effect of EU enlargement on the log monthly consumption expenditure and the labour market outcomes of immigrant households from new EU member countries (2006–2007), immigrants who were documented and working formally before accession

	Total consumption (1)	Food, clothing, and other basic needs (2)	Housing (3)	Transportation, leisure, instalment purchases and debt (4)	Labour income (in log) (5)	Permanent contract (6)
Post	0.046 (0.030)***	0.087* (0.051)	0.006 (0.044)	0.038 (0.030)	0.005 (0.027)	-0.096*** (0.024)
New EU x Post	0.080 (0.021)	0.063 (0.061)	0.056 (0.061)	0.127*** (0.041)	0.022 (0.038)	0.039 (0.061)
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	No	No
Labour income	Yes	Yes	Yes	Yes	No	No
No. of obs.	801	801	801	801	801	801
Adjusted R <sup>2</sup>	0.518	0.426	0.381	0.218	0.148	0.113

NOTES: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . 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. Labour income is the average monthly labour 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 online appendix A for the remaining sample restrictions and variable definitions.

DATA SOURCE: Institute for Multiethnic Studies (ISMU) surveys 2006 and 2007

increase in the probability of having a permanent contract in the years 2008 and 2009 (column 6).<sup>33</sup>

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 behaviour 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>34,35</sup> This strategy has the advantage of identifying the set 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 by moving to the formal sector. We thus replicate our short-term analysis using this particular group of immigrants. These results are reported in table 6 columns 1 to 4. We observe that the estimated effect on food, clothing and

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33 We also examine possible effects on the probability of part-time versus full-time employment (intensive margin of labour supply) but do not detect any statistically significant effect (see online appendix table B2).

34 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.

35 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.

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, instalment purchases and debt.

In table 6, columns 5 and 6 focus on the treatment effect on labour 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 labour income (column 5) and on the probability of having a permanent contract (column 6) suggest that the labour 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 labour 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 online appendix A for further details). Due to their administrative nature, these data include only immigrants that are working in the formal labour market as employees, who in principle correspond to the ISMU subsample of documented immigrants with a valid work permit.<sup>36,37</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>38</sup> An advantage of the Social Security data is that we can also observe daily wages, which, unlike monthly wages in the ISMU data, do not reflect changes in the labour supply. Online appendix table B3 reports the descriptive statistics of our sample. We see that the treated and the control 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>39</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

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36 Hotchkiss et al. (2015) show that administrative data in the US may actually include a small number of undocumented immigrants with “fake” fiscal code.

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

38 Since we lack information on the year of arrival in Italy, we use the date of entry in the labour market as a proxy of the arrival date.

39 We cluster standards errors at the worker and year level.



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

	Monthly wage (in log) (1)	Daily wage (in log) (2)	Permanent contract (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
No. of obs.	38,081	38,081	38,081
Adjusted R <sup>2</sup>	0.603	0.681	0.697

NOTES: \*p<0.10, \*\*p <0.05, \*\*\*p <0.01. Two-way clustered standard errors (at worker level and at year level) are in parentheses. All specifications include year, worker and firm fixed effects (FEs). 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.

DATA SOURCE: Italian Social Security (INPS) records 2001–2012

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 coefficient estimates are not statistically significant in the period before the enlargement. The regression estimates confirm the cross sectional results from the ISMU survey (table 5, 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 labour 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 labour market attachment.

The above labour 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 labour 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 labour 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 expenditure, the information on remittances and savings in the ISMU data is imperfect (Dustmann et al. 2017).<sup>40</sup> Regarding savings, we have information only on savings held in the host country but not 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>41</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>42</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,

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40 Total household income can be written as the sum of consumption and total savings, where total savings are the sum of savings and remittances. It turns out that computed household income coincides with the reported household income (available in 2007 and onwards) only in 58% of the cases, suggesting that there is considerable measurement error in savings and remittances as discussed in Dustmann et al. (2017).

41 Dustmann and Mestres (2010a) show that not accounting for savings in the home country may result in distorted conclusions regarding immigrants' saving behaviour.

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

respectively), in our first set of OLS estimates we follow Dustmann and Mestres (2010b) and set zero savings and/or remittances equal to 1 and use  $\log(y+1)$  as our dependent variable, where  $y$  is savings, remittances or the sum of the two. In our second set of OLS estimates, we use instead the inverse hyperbolic sine transformation of the saving and remittance variables (see, for example, Clemens and Hunt 2019).<sup>43</sup> Then, we adopt a linear probability model in order to study the extensive margin of savings and remittances. Table 8 reports the results of three models.<sup>44</sup> There is a negative statistically significant effect on remittances in 2010 and on savings in 2012 irrespective of the transformation we use. These are years for which we find a positive effect on housing expenditures (table 4, 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 reduce savings and remittances after the EU enlargement through legalization and accessing permanent employment contracts.<sup>45</sup>

## 7. Robustness, placebo tests 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-differences 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

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43 The estimated coefficients in these specifications can be interpreted analogously to those using a logarithmic transformation. Unlike the logarithmic transformation, however, inverse hyperbolic sine transformation can accommodate zero values (see Burbidge et al. 1988).

44 These results should be interpreted with caution for the reasons we described above regarding the measurement of remittances and savings in the ISMU survey.

45 Basic accounting implies that household income should be equal to the sum of consumption plus total savings, where total savings are the sum of savings plus remittances. Therefore, a simple way to correct for measurement error is to impute total savings from the difference between household income and consumption whenever household income is available (i.e., survey years 2007–2012). We re-conduct the analysis using the imputed total savings and report the results in table B4 in the online appendix. As there are a number of observations with negative imputed savings, in column 1, we use the log-modulus transformation, which is defined for zero and negative values (see John and Draper 1980). The results presented in table B4 suggest a negative effect on total savings in years 2010, 2011 and 2012, in line with a reduced precautionary motive.

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

	OLS			OLS		Linear probability model			
	Logarithm (amount+1)			asinh(amount)		(=1 Yes, =0 No)			
	Savings (1)	Remittances (2)	Total (3)	Savings (4)	Remittances (5)	Total (6)	Prob(Save) (7)	Prob(Remit) (8)	Prob(Save or remit) (9)
New EU x Year 2005	0.597 (0.499)	-0.217 (0.264)	0.275 (0.262)	0.670 (0.564)	-0.240 (0.302)	0.308 (0.294)	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)	-0.152 (0.346)	-0.718* (0.372)	-0.348 (0.462)	-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)	0.298 (0.462)	-0.158 (0.344)	0.017 (0.450)	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)	-0.165 (0.333)	-0.056 (0.154)	0.048 (0.276)	-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)	0.185 (0.379)	-0.201 (0.358)	0.291 (0.369)	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)	-0.185 (0.393)	-0.876*** (0.203)	-0.444 (0.277)	-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)	0.332 (0.376)	0.082 (0.306)	0.250 (0.421)	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)	-0.772* (0.455)	-0.537 (0.377)	-0.849*** (0.201)	-0.139* (0.074)	-0.099 (0.066)	-0.140*** (0.032)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country of origin dum.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Labour income	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	4,233	4,233	4,233	4,233	4,233	4,233	4,233	4,233	4,233
Adjusted R <sup>2</sup>	0.163	0.208	0.209	0.161	0.204	0.204	0.136	0.173	0.159

NOTES: \*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01. asinh is inverse hyperbolic sine. 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. Labour income is the average monthly labour income (net of taxes) of the respondent. See online appendix A for variable definitions and sample restrictions.

DATA SOURCE: Institute for Multiethnic Studies (ISMU) surveys 2004–2012

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 4, panel A, column 4) and present these results in table 9. First, we proceed by looking at anticipation effects as treated households that moved to Italy prior to the EU enlargement may have somehow anticipated that the labour market restrictions would have not been implemented. We thus restrict our sample to those that had migrated in Italy at least one year before 2007, and present these results in column 1. 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, suggesting that our results are not driven by anticipation.<sup>46</sup>

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-differences strategy. To address this issue, we first compare provinces where the treated and the control group were of similar size before 2007 to provinces where the treated group was the minority. The idea behind our strategy is that spillover effects should be stronger in provinces where the treated and the control groups are of similar size (potentially through the competition in the labour 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 (see online appendix figure B3 and table B5). 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 (see online appendix figure B4 and table B6).

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 the standard

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<sup>46</sup> In online appendix table B7, we further restrict the sample to those who had migrated in Italy at least two years before the EU enlargement (column 1) and then three years before (column 2). The latter corresponds to immigrants who arrived in Italy even before the end of EU accession negotiations of Bulgaria and Romania in 2004. Restricting the sample even for those who arrived in Italy well before the announcement of the policy makes no difference to this conclusion.

**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 (1)	Equivalized consumption (2)	Alternative control group (A8 countries) (3)	Definition of immigrant household (4)	Clustering standard errors (5)	Accounting for business cycle (6)	Accounting for changes in household structure (7)
New EU x Year 2005	-0.001 (0.040)	0.024 (0.048)	0.066 (0.106)	-	-0.001 [-0.068,0.064]	0.013 (0.050)	0.002 (0.050)
New EU x Year 2006	0.016 (0.034)	0.006 (0.049)	0.098 (0.096)	-	0.010 [-0.024,0.047]	0.007 (0.037)	0.008 (0.035)
New EU x Year 2007	0.101*** (0.032)	0.106*** (0.029)	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	0.028 (0.030)	-0.014 (0.062)	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	0.054** (0.024)	0.056 (0.042)	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	0.121*** (0.044)	0.102 (0.036)	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	0.028 (0.025)	0.030 (0.025)	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	0.075** (0.033)	0.086** (0.034)	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	Yes	Yes
Country of origin dum.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Labour income	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of obs.	5,060	5,385	2,209	3,941	5,385	3,815	5,385
Adjusted R <sup>2</sup>	0.450	0.226	0.443	0.421	0.440	0.546	0.448

NOTES: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . Sample is restricted to those who arrived in Italy before 2006 in column (1) and before 2007 in columns (2) to (7). Household controls exclude number of household members, number of cohabiting children and number of cohabiting non-adult children in column (2). In column (2) the dependent variable is log monthly equivalized consumption expenditure calculated by using standard OECD scale, i.e., using different weightings for each household member 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). In column (3) the control group consists of nationals of Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia instead. In column (4) the sample is restricted to single respondents or respondents who have a cohabiting partner from the same country of origin (available only 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 labour income, column (6) includes the interaction between province and year and occupation (available only for employed individuals) and year fixed effects and column (7) includes the interaction between having a spouse abroad and year and number of cohabiting children and year fixed effects. For the remaining definitions, see notes of table 4.

DATA SOURCE: Institute for Multiethnic Studies (ISMU) surveys 2004–2012

OECD equivalence scale, which assigns a weighting of 1 to the first adult, 0.7 to the second and each subsequent adult and 0.5 to each child.<sup>47</sup> These results are presented in table 9, column 2, and in line with our benchmark estimates presented in table 4 (panel A, column 4).<sup>48</sup>

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. 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 3. Comparison of these results to our benchmark estimates in table 4 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 4).

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 1,000 replications

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47 We explore the sensitivity of the findings to the weighting by using the modified OECD equivalence scale and the equivalence scale used by ISEE. The estimated effects, presented in online appendix table B7, columns 3 and 4, are very similar across these different measures of individual consumption.

48 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.

to account for the small number of clusters. These results (column 5) 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 native-born (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>49</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 online appendix table B6). The results after the inclusion of these new set of dummies (column 6) are similar to the benchmark.

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 7). 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 online appendix table B8. 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 for the

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49 Including these controls in our main specification reduces our sample size as the occupation variable is available only for employed individuals.



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 for the period 2010–2012. Results in online appendix table B9 (column 1) 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 (see online appendix table B9, 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 (3) 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 EU enlargement. In online appendix table B10, we present this ratio based on our main results on total consumption (table 4). The reported ratios are between three and seven, suggesting that in order to attribute the entire estimated effect of 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 labour 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 five years and those with five to 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>50</sup> We verify a positive and statistically significant effect among immigrants with less than five years of residence by 2007 (column 1), while the coefficient of the interaction term is still positive but half in size and not statistically different from zero among immigrants with five to 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 benefited from the EU accession most were those not close to acquiring permanent residence or citizenship rights in Italy.

Still, the labour 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 (see online appendix A), which contains unique information on whether households have a mortgage and, if they do, the year 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 find no clear difference in the fraction of the treated and control with a mortgage issued immediately before or after the EU enlargement (see online appendix table B11).<sup>51</sup>

Another possible mechanism is access to social benefits such as welfare or unemployment benefits. This mechanism could be more relevant 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 three years old or for the elderly; see Madama et al. 2014). Moreover, Italy was among the countries with the lowest replacement rate in unemployment (OECD 2009)

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50 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.

51 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.

**TABLE 10**  
Estimated effect of EU enlargement on consumption of immigrant households from new EU member countries (2004–2012), heterogeneity by years of residence

	Immigrants with less than five 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
	(1)	(2)	(3)
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
Labour income	Yes	Yes	Yes
No. of obs.	2,338	2,645	2,393
Adjusted R <sup>2</sup>	0.435	0.450	0.409

NOTES: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . 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. Labour income is the average monthly labour income (net of taxes) of the respondent. See online appendix A for variable definitions and sample restrictions.  
DATA SOURCE: Institute for Multiethnic Studies (ISMU) surveys 2004–2012

and benefits were accessible only by workers with at least two 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>52</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 alter 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

<sup>52</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).

treated, then 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 rule out 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 labour market conditions continue to be the most plausible underlying mechanism behind the increases in the household consumption of the treated.

## 8. Conclusions

In this paper, we focus on Romanian and Bulgarian households that migrated to Italy before 2007 and study whether the accession of their home country in 2007 affected their consumption behaviour. 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 labour income after the 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 labour market stability decreases the uncertainty regarding future labour 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 labour market conditions is the most plausible underlying mechanism.

Our results have important policy implications in a period of increased legal uncertainty following the withdrawal of the United Kingdom from the EU, which is expected to significantly increase the bureaucratic burden of acquiring work permits. Moreover, our finding of a positive effect of the EU enlargement on the consumption of immigrant households from new member states contributes to the recent debate over the possible accession of Albania and North Macedonia to the EU.

## Supporting information

Additional supporting information can be found in the online version of this article.

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