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THE CULTURAL EFFECT

- Evidence of Transnational and Intergenerational Transmission of
Preferences for Self-Employment in Europe

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Abstract:

This paper examines the effect of culture on self-employment among European immigrants. Using self-employment rate in the country of origin as a proxy for culture and defining the cultural effect on self-employment as transnational and intergenerational transmission of preferences for self-employment, we test the hypothesis that higher self-employment rate in the country of origin increases the probability of being self-employed. Running fixed-effects regressions using data from the European Social Survey on both first- and second-generation immigrants, we find a positive and statistically significant association between an individual's probability of being self-employed and the self-employment rate in the country of origin. This relationship remains positive and significant after controlling for socio-demographic factors such as age, education and gender, and holds even after including parental self-employment as a control variable. While previous research on this relationship has been carried out in the United States, our study is, to the best of our knowledge, the first to use European data. By applying the methodology to a completely new sample, we add important evidence and generalizability to the previous studies suggesting that culture plays an important role in determining economic outcomes in general and determining self-employment decisions in particular.

Keywords: immigrant self-employment, culture, transmission of preferences

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I. Introduction

In many European countries, governments promote self-employment by offering financial support, education and tax relives to business start-ups (Taylor 2011).[1] The governmental interest in self-employment stems from a traditional view of self-employment as a solution to poverty and unemployment, as a source of innovation and as a provider of healthy competition to the economy as a whole (Schumpeter 1934). Policy-makers hope that enterprise-friendly policies will lead to an increase in the marginal propensity to enter self-employment, and in turn expect to achieve some of the stated beneficial effects.

Adjusting the institutional environment in favour of small-businesses is not an unfounded policy. Several studies have mapped the relationship between self-employment and political institutions (see, for example, Malchow-Møller, Markusen & Skaksen 2010; Torrini 2005). However, self-employment rates in Europe appear to remain relatively stable with no sign of convergence (Parker & Robson 2004). The large and continuous variation in self-employment rates across countries, despite governmental promotion, raises an important question: if institutions fail to account for the whole variation in self-employment rates, what may then explain the remaining variation?

Figure 1. Self-Employment Rates in Europe, % of Total Labour Force
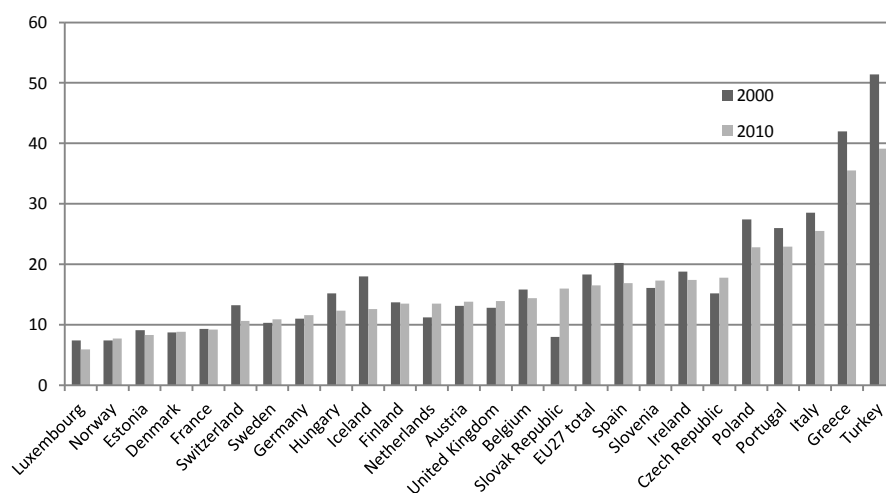
SOURCE: OECD Factbook 2011: Economic, Environmental and Social Statistics

A relatively new and fairly unexplored field of economic research is the relationship between culture and economic behaviour. If cultural background determines economic behaviour, it

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[1] We use the term "self-employment" rather than "entrepreneurship" throughout the paper, thereby including all replicative and innovative activities that employers and own-account workers engage in professionally (for a discussion on the difference between innovative and replicative self-employment, see Baumol & Schilling (2008)).

should also have an impact on the decision to become self-employed. This offers a potential alternative explanation to why self-employment rates differ so much, and change so slowly, across countries.

The purpose of this paper is to examine the cultural effect on self-employment, where we define culture as "those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation" (Guiso, Sapienza & Zingales 2006, p. 2). We examine this relationship using data on first- and second-generation immigrants in more than 30 European countries and self-employment rates in the immigrants' countries of origin as proxies for culture. If preferences for self-employment are transmitted across countries and generations independently of institutions, this would imply that culture has an effect on the employment decision. A few studies on this relationship have been carried out in the United States, but this is, to the best of our knowledge, the first paper to examine the relationship using European data.

The outline of the paper is as follows. In section II, we review previous research on culture and economics in general and culture and self-employment in particular. We also discuss our contribution to this topic and formulate our hypothesis. The next section describes the method, the empirical set-up and our data set, including a survey of control variables used in the model. The presentation and analysis of our empirical findings in section IV is followed by a conclusion in section V. The paper ends with critical remarks and suggestions for further research.

II.   Previous Research and Our Contribution

While sociologists and anthropologists have long considered culture to be an important determinant of economic behaviour, economists have until recently been fairly unwilling to explain economic outcomes through culture. Instead, variation in economic behaviour across regions has by modern economists been assigned to differences in institutions, policies or technology, where culture has been regarded as an outcome rather than seen as exogenous (Guiso, Sapienza & Zingales 2006).

The research on the connection between self-employment and institutional factors is relatively widespread. For example, self-employment is found to be correlated with tax rates and tax systems (Torrini 2005; Hansson 2012). Differences in taxes and other institutional factors may explain a large part of the variation in self-employment rates across countries, but fail to explain why self-employment rates do not converge across countries, and also why self-employment rates differ within countries. For example, several studies show that self-employment rates differ substantially across immigrant groups and compared to native-born in the United States, despite the fact that these groups live in similar institutional settings (Fairlie & Meyer 1994). In order to explain this phenomenon, some alternative theories have been suggested.

The *disadvantage theory* states that some groups are "pushed" into self-employment due to disadvantages faced within the labour market. For example, language barriers or discrimination can lower the returns to employment for some immigrant groups and make them prefer self-employment (Fairlie & Meyer 1994). Some researchers have found a positive correlation between self-employment and unemployment even at the country-level, which would support the disadvantage theory (Staber & Bögenhold 1990).

The *enclave theory* states that the geographical concentration of some immigrant groups has enabled them to build strong entrepreneurial networks within that specific area, which could explain why some groups are overrepresented in self-employment (Borjas 1986).

Neither of these theories explicitly acknowledges culture as a determinant of self-employment. Instead, they assume that individuals make rational economic decisions based on existing opportunities in the prevailing institutional setting.

The relationship between culture and self-employment has not, however, been entirely disregarded in economic research. The connection has, for example, been examined through regressions of self-employment on various cultural attributes such as tolerance for ambiguity,

optimism, perception of risk, and dissatisfaction (Schere 1982; Shane et al 2000; Noorderhaven et al. 2004).

Some studies link country-of-birth characteristics to immigrant behaviour in the country of residence. Yuengert (1995) tested what he referred to as the "home country hypothesis" and found a positive and significant relationship between a first generation immigrant's probability of being self-employed in the United States and self-employment rate in the country of birth. He argued that many immigrants, in comparison to native-born Americans, have experience from the informal sector in their country of origin, increasing what could be referred to as sector-specific human capital. This accumulated capital would in turn encourage immigrants to seek self-employment in specific sectors.

Other researchers have reached other conclusions. Using aggregate self-employment rate per immigrant group as dependent variable instead of individual self-employment, Fairlie & Meyer (1994) failed to find a significant relationship between self-employment rate in the country of origin and the probability of being self-employed in the country of residence and thus rejected the "home country hypothesis".

Oyelere and Belton (2009) re-examined the relationship and found that immigrants from developed countries are more likely to enter self-employment than immigrants from developing countries. Arguing that this mechanism is more important than the correlation with country-of-birth self-employment rates, they also contradicted Yuengert's findings.

To the best of our knowledge, the first paper that explicitly refers to the relationship between country-of-origin self-employment rate and an immigrant's probability of being self-employed as a cultural effect is the one by Marcén & Sevilla-Sanz (2009). Running regressions of the probability of being self-employed for second-generation immigrants on self-employment rates in the countries of origin, they found a positive and significant correlation. Although obtaining similar results as Yuengert (1995), they reached a new conclusion: that culture has a significant impact on the decision to become self-employed.

The studies referred to above have generated ambiguous results, even though the majority of them are based on the same data source.[2] Accordingly, in order to confirm a cultural effect, further research is needed. To complement the findings by Marcén & Sevilla-Sanz (2009), we will revisit the effect of culture on self-employment in a new setting. We distinguish our study from previous work in three ways: First, we will use a new source of data and include data on

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[2] Yuengert used Census 1980, Fairlie & Meyer used Census 1980 and 1990, Marcén & Sevilla-Sanz used Census 1970.

immigrants from more than 30 countries in Europe instead of limiting the study to the United States. Second, we will test the relationship on both first- and second-generation immigrants. Third, we will use self-employment rates for more than 100 countries of origin.[3]

If the positive relationship between country-of-birth self-employment rate and the probability of being self-employed found by Marcén & Sevilla-Sanz (2009) using US data can be generalized to a broader set of countries with different institutional settings, similar results should be obtained when using European data. Accordingly, defining country-of-origin self-employment rate as a proxy for culture, we set up the following hypothesis:

Hypothesis: *There is a positive relationship between self-employment rate in the country of origin and the probability to be self-employed for immigrants in Europe.*

The alternative hypothesis is that there is no such relationship, or that the relationship is negative. Should we fail to find a relationship between self-employment rate in the country of origin and the probability of being self-employed, this would imply that immigrants fully adapt to the institutional conditions in the new country, and thus, that culture has no significant effect on the employment decision. This would be consistent with much of the earlier economic research on determinants of self-employment.

Should we find a negative relationship, this could, for example, imply that discouraging experience from self-employment in the country of origin with poor conditions, low returns and a high degree of uncertainty, could make immigrants seek employment instead of starting up an own business in the country of residence. However, we find little support in the literature for this alternative theory.

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[3] Marcén & Sevilla-Sanz (2009) used self-employment rates for 19 OECD countries.

III. Method

Research Approach

When examining the effect of culture on economic behaviour, two main issues need to be considered. First, the cultural effect must be distinguished from the effects related to political institutions. In most cases, culture and institutions are difficult to separate as they are often linked to the same region. It is natural that they affect one another in both directions. Consequently, to establish a cultural effect, all institutional factors must be held fixed. Second, as culture is not quantifiable, a suitable proxy is required. We argue that examining the cultural effect through regressions of immigrant self-employment on self-employment rate in the countries of origin is an approach that reliably deals with both of these issues.

Studying immigrant behaviour in order to hold institutional and environmental factors constant, is sometimes referred to as an epidemiological approach. Alternative approaches, such as holding institutional factors fixed by including dummy variables carries the risk of arbitrariness and measurement errors.

Using data on both first- and second-generation European immigrants allows us, by construction, to isolate potential cultural effects on self-employment from those of institutions, norms and market conditions in the country of residence.

We can assume that first-generation immigrants face high labour market disadvantages, such as language barriers, that can affect the self-employment decision. Looking at only first-generation immigrants would imply difficulties in separating a potential cultural effect from evidence of the disadvantage theory. Examining second-generation immigrants deals with this issue, as this group is culturally more integrated and has experienced social conditions more similar to those of native-born Europeans. Another problem with looking at first-generation immigrants only is that these immigrants may have parents born in a third country, which makes the social and ethnic heritage – and thus a potential cultural effect – hard to trace or estimate in a reliable way. Nevertheless, the employment behaviour of first-generation immigrants, who have been less exposed to the new culture compared to second-generation immigrants, is interesting to analyse since a potential cultural effect is likely to be stronger. Subsequently, the optimal strategy seems to be to look at both first-and second-generation immigrants and compare the results accordingly.

Examining representative behaviour among immigrants reveals a wide span of complexity. For example, immigrants are unlikely to be ideal representatives for the populations in the countries of origin, as their preferences and beliefs may differ from country-of-birth average. However, differences in employment behaviour across nations and across immigrant groups are likely to be larger than differences between immigrants and those that stayed in their home country.

Finding a suitable proxy for culture is equally important. As mentioned in section II, some studies have intended to approximate culture by deriving cultural attributes from attitudinal surveys. However, this approach is associated with subjectivity and carries the risk of reverse causality. This occurs, for example, if the attitudes of an individual are used to explain her economic behaviour, when it was actually her economic situation that caused her to develop these attitudes. Using a proxy that is not based on subjective perceptions eliminates the risk of reverse causality by construction. Self-employment rate in the country of origin is a suitable proxy, as it cannot be altered by the behaviour of immigrants once they have emigrated from their country of birth.

Empirical Set-Up

To test our hypothesis empirically we assume the following model:

$$\Delta P(Selfemployed_{icr} = 1| x) = \beta_0 + \gamma \Delta culture_c + \beta_2 \Delta x_{icr} + a_r + \varepsilon_{icr} \qquad (1)$$

where the binary variable $Selfemployed_{icr}$ equals 1 for individuals i from countries of origin c living in countries of residence r that have defined themselves as "self-employed" rather than "employed" or "working for own family's business". It thus equals zero for all individuals in the labour force that are not self-employed. We assume that the probability of being self-employed is affected by a number of factors. x_{icr} denotes various socio-demographic factors which will be further specified below. α_r represents country-of-residence factors, for example institutions, that are fixed over time. This is important as it is likely that systematic differences across European countries may affect how immigrants are integrated in society and thus affect the immigrants' propensity to become self-employed. β_0 denotes the intercept and ε is the idiosyncratic error term, denoting the variation in the probability of being self-employed that cannot be explained by the other variables. The variable of interest is *culture*, which we defined in the first section of this paper. Since we cannot properly observe

culture, we approximate it with the variable *selfrate*, which denotes self-employment rate in the country of origin.[4] We assume the following relationship between $culture_c$ and $selfrate_c$:

$$culture_c = \delta_0 + \delta_1 selfrate_c + v_c \tag{2}$$

where v denotes the variation in *culture* that is not absorbed by *selfrate*. In order to use *selfrate* as a proxy variable for *culture* in equation (1), we assume that ε is uncorrelated with x, a, and *culture*. Furthermore, we assume that v is uncorrelated with x, a, and *selfrate*. More specifically,

$$E(culture| x, a, selfrate) = E(culture|selfrate) = \delta_0 + \delta_1 selfrate \tag{3}$$

Now, we simply replace *culture* with *selfrate* in equation (1):

$$\Delta P(Selfemployed_{icr} = 1| x) = \beta_0 + \beta_1 \Delta selfrate_c + \beta_2 \Delta x_{icr} + a_r + \varepsilon_{icr} \tag{4}$$

To estimate the linear probability model (4) empirically, we run ordinary least squares regressions with country-of-residence fixed effects, i.e. fixed effects for all the European countries included in the study. Since our dataset is a pooled cross section of independent samples, we also include year-dummies to control for potential differences in sample distributions across ESS rounds. Furthermore, we compute robust standard errors to correct for heteroskedasticity.[5]

One potential problem with this set-up is the risk of attenuation bias. If *culture* and *selfrate* are not well correlated, i.e. that the variation of v is large, then β_1 in equation (4) will be attenuated, or biased towards zero. However, as long as the variance of *culture* is larger than the variation of v, the attenuation bias should not be a major source of concern.

Data

Our samples are obtained from the European Social Survey (ESS) database which is a cross-country survey initiated in 2001 with five completed rounds. The survey covers micro-data, such as employment status, country of birth, gender, years of education, age, time in the

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[4] Self-employment rate is defined as number of self-employed over total labour force. Number of self-employed includes all persons who operate their own economic enterprise, or engage independently in a profession or trade, with or without hired employees. Total labour force includes all employed and unemployed adults, and excludes retired, students, disabled and stay-at-home parents.

[5] Linear probability models contain heteroskedasticity, which causes inefficient estimates. If the form of the heteroskedasticity is known, weighted least squares can be used to obtain efficient estimates. However, computing robust standard errors is the simplest way of correcting for heteroskedasticity and should be sufficient for this study (Woolridge 2009, p. 290).

country and parents' country of birth on nearly 300 000 individuals in more than 30 European nations. Approximately one tenth of the respondents are immigrants.

For self-employment rates in the country of origin, we used data from ILO (International Labour Organization). We computed an average annual self-employment rate for each country based on the available measures between 1982 and 2008. Since the data covered only a few, often different, years for each country, using an average rate increased the number of countries substantially. The choice of using an average self-employment rate may seem somewhat arbitrary but is consistent with our definition of culture, which states that culture remains fairly unchanged over time. This is also consistent with findings by Marcén & Sevilla-Sanz (2009), who tested the same relationship several times with self-employment rates for different years, generating similar result for each year. Using the average rate compared to choosing one specific year should thus only have marginal effects on our results. Ideally, we would use measures from earlier years as we can assume that many immigrants, especially those with children born in the new country, left their home country decades ago. Unfortunately, earlier measures are only available for a limited number of countries and our priority was to include as many countries as possible in order to obtain a large variation in self-employment rates. In addition to the self-employment rates from ILO, we obtained purchasing power parity adjusted GDP per capita rates for 1990 for all countries of origin from the World Bank.

Since the self-employment rates are computed as share of total labour force, we removed all observations of individuals not in the labour force, including students, retired, stay-at-home-parents and discouraged workers.

Merging the ESS data on respondents' country of origin with corresponding self-employment rates and 1990 GDP per capita for each country, yielded datasets of 10 042 observations for first-generation immigrants, 12 139 observations for second-generation immigrants using the father's country of origin, 11 988 using the mother's country of origin and 7 993 observations using both parents country of origin. Descriptive diagrams for the sample on first-generation immigrants as well as for the sample on second-generation merged with father's country of birth are presented in Appendix B. Age and education appear to be approximately normally distributed (see Figures 4, 6 and 10-11 in Appendix B). Moreover, both samples seem equally distributed across gender (see Figures 2 and 8 in Appendix B).

Figures 5 and 9 present the number of respondents per country in Europe, Israel included, and number of self-employed. Two countries where a relatively large fraction of the

respondents live are Israel and Switzerland. This may seem confusing, as the number of respondents living in these countries does not reflect the relative size of these countries' entire populations. This can be explained by the fact that we have excluded all respondents that are not first- or second-generation immigrants from the samples. We can thus assume that our samples contain more respondents for countries where a larger fraction of the entire population are immigrants.

Control variables

There may be differences across immigrant groups other than cultural attributes that can contribute to explain the variation in self-employment. To attain *ceteris paribus* in the analysis, i.e. all other relevant factors equal, we control for parameters that according to the literature may correlate with both country-of-origin self-employment rate and the probability of being self-employed.

Following the research by Dawson, Henley and Latreille (2009), Blanchflower (2000), Hout & Rosen (1999), Borjas (1986) and Fairlie (2004) on the motivators of self-employment, we control for the socio-demographic attributes *gender*, *age*, *level of education*, *marital status* and *children*.

Although most authors agree on how these parameters correlate with an individual's probability of being self-employed, they sometimes present conflicting evidence. While Fairlie (2004) claims that higher education has a positive effect on the probability of being self-employed, Blanchflower (2000) argues that the least educated have the highest probability of being self-employed, but also that the most highly educated have high self-employment rates. This would imply that education has a u-shaped effect on self-employment, which is why we include education in both squared and unsquared form in the regression. The differences in employment behaviour between males and females and across age groups are well-documented, and several studies show that males are more likely to be self-employed than females, and also that self-employment increases with age (see, for example, Blanchflower 2000). When controlling for age, we include a variable with its squared form to detect any potential non-linear relationship. When controlling for marital status, we choose not to use a dummy for legal marital status, but rather if the respondent lives permanently with a partner, thereby including all married respondents living with their husband or wife and all unmarried respondents that live in a marriage-like relationship. Furthermore, the ideal way to control for children would be to use a variable for number of children. However, since the ESS only

covers data on whether the respondents have ever had a child living with them, we can only distinguish parents with at least one child from those with no child.

Assuming a potential connection between parents' employment status and the probability of being self-employed, we include control variables for the parents' employment status. There is support for such a relationship in the literature where, for example, Hout & Rosen (1999) argue that the father's employment status plays an important role for the children's propensity to be self-employed. This is controlled for by including dummy variables that equal 1 if respondent's parents were self-employed when respondent was 14 years old.

While recent immigrants face a higher labour market disadvantage than established immigrants, the opportunity perception and attitudes should not change over time (Levie 2007). Since *time in the country* could be correlated with both employment status and origin (some historical events may for example cause specific groups of people to immigrate in larger fractions), we add time in the country as control variable to the regression.

Furthermore, to compare our results to the research by Oyelere & Belton's (2009), claiming that the economic status in the country of origin, and not primarily culture, drives differences in immigrant self-employment, we control for *GDP (PPP) per capita* in the country of origin. In accordance with the research suggesting a u-shaped relationship between self-employment and per capita income, we include GDP (PPP) per capita in squared as well as in unsquared form (see, for example, Carree et al. 2002).

Assuming potential systematic differences in employment status between urban and rural inhabitants, we control for *type of living area*. Moreover, a dummy variable for agricultural and fishery workers are included in the model as self-employment is more common within these occupations. People that work in agriculture are usually brought up in an agricultural environment, or in agricultural-working families, and working as a farmer usually implies being self-employed. It is thus the agricultural background that determines self-employment, and not the other way around. Therefore it is important to control for agriculture.

Excluded variables

There are a number of variables that we intentionally omitted from the regressions. Previous studies mention risk aversion as a determinant of self-employment (see, for example, Hartog, Ferrer-i-Carbonell & Jonker 2002), but we do not include it in our model because of the difficulty of measuring risk aversion reliably. As explained above, using subjective measures in

econometric models implies a risk of reverse causality. We only included control variables that can be measured reliably. For example, answering the question if you have ever had children, implies a simple "yes" or "no" answer – there is no ambiguity. However, when expressing the level of risk aversion, there may be a large variation in answers depending on, for example, the current mood of the respondent.

Furthermore, we do not include initial capital in the regression. Initial capital is of interest, as previous research indicates a positive relationship between initial capital and self-employment at the individual level (Evans & Jovanovic 1989). Blanchflower and Oswald (1998) found that receiving a heritage or gift positively affects the probability of being self-employed. However, the ESS survey does not separate inherited capital and earned capital, which implies a risk of reverse causality as individuals may have earned part of their capital through self-employment.

A third variable that we do not include is the partner's employment status. There is a positive correlation between an individual's probability of being self-employed and partner's self-employment, but the problem associated with controlling for this factor, as for the other excluded variables, is the difficulty in determining the direction of the potential causality. More specifically, we do not know whether it is that individuals with an 'entrepreneurial spirit' are attracted to others with the same spirit, or if one partner actually has an impact on the other, once they are in a relationship.

IV. Empirical Findings and Analysis

Evidence on Culture and Self-Employment
Using First-Generation Immigrants

Tables 1-2 present the results from regressions 1-24 where the explanatory variable is *selfrate* in the country of birth for first-generation immigrants. As shown in the tables, we do not find a significant relationship without the use of control variables. However, when controlling for GDP in the country of birth, we find a positive and statistically significant relationship between an individual's probability of being self-employed and the self-employment rate in its country of birth. The dummy variable female has a negative and significant effect on the probability of being self-employed. This indicates that fewer women than men are self-employed (see figures 2-3 in Appendix B).

The size and significance of our coefficient of interest do not change significantly when including further control variables. We fail to find a significant non-linear relationship between per capita GDP and the probability of being self-employed – only the unsquared form of GDP is significant, which means that we cannot confirm the findings by Carree et al (2001). Nor does age or education appear to be non-linearly related to self-employment. We re-run the regressions for first-generation immigrants without the squared forms of these variables. These results are presented in table 2. In unsquared forms, we find that age, years of education and GDP are all significant in explaining the variation in the probability of being self-employed, but the size of their coefficients is small. Furthermore, living with a partner is positively related to the probability of being self-employed.

When controlling for father's self-employment, the coefficient for *selfrate* decreases slightly in favour of the coefficient for father's self-employment. It seems reasonable that parents' occupational choice and employment relation affect children. Interestingly, the coefficient for *selfrate* is positive and significant even after controlling for parents' self-employment. This indicates that children are not only affected by their parents' choices and preferences, but also by the general social environment in which they grow up. The coefficient for the dummy variable mother's self-employment is less significant whenever including father's self-employment. Our dataset is probably too small to draw any general conclusions about this, but it could be the case that children are more affected by their father's occupational choice than by their mother's. This may depend on the fact that mothers are less

likely than fathers to be in paid work, and thus less likely to work as role models for children's choice of profession.

We find that neither of the variables time in the country, children, type of living area and agriculture significantly contributes to the variation in the probability of being self-employed. Furthermore, the year dummies are insignificant in almost all cases, indicating that the sample distributions from different rounds of ESS do not differ significantly. Of all variables that are significantly correlated with the probability of being self-employed for first-generation immigrants, $selfrate$ has the largest coefficient. Following these results, we cannot reject our working hypothesis for first generation immigrants.

Evidence on Culture and Self-Employment Using Second-Generation Immigrants

Tables 3-5 in Appendix A present results for regressions 25-57 on second-generation immigrants. In table 3, we used $selfrate$ for father's country of birth, in Table 4 for mother's country of birth, and in Table 5 for both parents' country of birth given that they come from the same country. We were unable to run regressions using $selfrate$ for both countries of origin for immigrants whose parents were born in two different countries. Since most parental couples come from the same country, the sample where only parents from two different countries are included would be too small. This is unfortunate, as it would have been interesting to see if either the father's or the mother's cultural background has a stronger effect on children's self-employment decision than the other parent's.

The coefficients for $selfrate$ are positive and significant whenever controlling for at least GDP per capita in the country of origin. When examining the effects of mother's and father's cultural backgrounds separately, the coefficients for $selfrate$ are slightly smaller than when looking at first-generation immigrants. This is consistent with what we expected, as a potential cultural effect is likely to be somewhat smaller for the second generation. The difference between the size of the coefficients between generations is however small, and they are equally significant. Interestingly, when both parents come from the same country we find that the coefficient for $selfrate$ is even larger than for the first-generation immigrants. These results strongly support the idea that preferences for self-employment are transmitted across generations.

Another finding is that the coefficient for the mother's country of birth is larger than that for the father's (see Tables 3-4 in Appendix A). This is particularly interesting when placed in comparison to the fact that the coefficient for father's self-employment is more significant than that of mother's. Perhaps mothers transmit values and norms to children to a larger extent than do fathers, and perhaps fathers are more role models of profession to children than are mothers. These questions are somewhat beyond the scope of this paper, but it would be interesting to conduct further research in this area.

The variable GDP per capita significantly contributes to the variation in the probability of being self-employed. Socio-demographic factors such as age, gender, partnership and years of education are also significantly correlated with the dependent variable. As for the first-generation immigrants, type of living area is statistically insignificant. Neither does having children significantly contribute to the variation in the probability of being self-employed.

Working in agriculture or fishing is significantly increasing the probability of being self-employed, as can be seen in the results for regressions 35, 46 and 57. In these regressions, agriculture has the largest coefficient – even larger than the coefficient for $selfrate$. This was not the case for first-generation immigrants, where the coefficient for agriculture was insignificant. This is interesting, and not entirely unintuitive considering that first-generation immigrants are likely to come from other countries than second-generation immigrants due to the time difference. The parents of the second-generation immigrants may have had other reasons for immigrating than immigrants that more recently left their home countries. It is for example plausible that many agricultural-working parents to second-generation immigrants have emigrated from adjacent countries with similar geographical environments. They would thus be more likely to continue to engage in agricultural activities in the new country and transmit a preference for this profession to their children. First-generation immigrants may to a larger extent have emigrated from geographically distant countries which makes agricultural work more difficult to resume.

For second-generation immigrants as for the first, the coefficients for $selfrate$ are positive and significant even after controlling for parental self-employment. We can assume that the transmission of preferences for occupational choice to children occurs both through parents' subtly expressed values and expectations and through their concrete actions. This indicates that culture has an impact on self-employment independently of whether parents live up to their own cultural expectations or not.

To sum up: for both first- and second-generation immigrants the self-employment rate in the country of origin is positively correlated with the probability of being self-employed, after controlling for GDP in the country of origin, socio-demographic factors and including country-of-residence fixed effects. These findings imply that our hypothesis cannot be rejected. Given these results, and considering previous findings by Marcén & Sevilla-Sanz (2009) and Yuengert (1995), we can conclude that there is strong evidence of a cultural effect on self-employment.

V.   Conclusion

The purpose of this paper was to examine the relationship between self-employment and culture. Using self-employment rate in the country of origin as a proxy for culture and defining the cultural effect on self-employment as a transnational and intergenerational transmission of preferences for self-employment, we tested the hypothesis that higher self-employment rate in the country of origin increases the probability for European immigrants to engage in self-employment. Applying the epidemiological approach and running several fixed-effects regressions, we found an unambiguously positive and statistically significant relationship after controlling for GDP per capita in the country of origin. This relationship remains positive and significant after controlling for socio-demographic factors such as age, education and gender, and holds even after including parental self-employment as a control variable. These results are all economically significant and imply that we cannot reject our working hypothesis.

While some studies carried out in the United States have reached similar results, this paper is, to the best of our knowledge, the first to use European data. The advantage of investigating Europe is that the set of institutions that immigrants face is broader and more diverse compared to that of the less heterogeneous United States. The evidence of transmission of preferences for self-employment across countries and generations can now be generalized to a broader set of countries and institutions, providing strong support for a cultural effect.

We can conclude that culture cannot be disregarded as an important determinant of self-employment. Our results contribute to the developing literature on the relationship between culture on economic outcomes in general and the effect of culture on employment decisions in particular. Our findings are also intuitively comprehensible; most of us are strongly affected by the norms, values and expectations in the close and extended environment in which we grow up, and it is reasonable to assume that these cultural attributes are used as benchmarks for important economic decisions.

In the introduction, we described how governments in Europe adjust the institutional setting in order to promote self-employment. Our results, suggesting that culture influences self-employment independently of institutions, contribute to explaining why these policies may have a limited effect on aggregate self-employment in the short run. More insight into the underlying cultural mechanisms affecting economic behaviour is vital when designing and evaluating labour market policies.

VI. Limitations and Suggestions for Future Research

When interpreting our findings, it is necessary to consider some of the limitations of the study. The first source of concern is our sample size. Compared to previous studies carried out in the United States, our sample contains much fewer observations. We do, however, believe that over 10 000 observations should be sufficient in order to generate reliable results. Second, some countries in the sample contain very few observations, implying that these observations may be misleading or unrepresentative. Nevertheless, we chose to keep these countries in our dataset in order to include as many observations and types of countries as possible in the analysis.

While this paper suggests that culture plays an important role in the self-employment decision, there is still much left unexplored. It would, for example, be interesting to investigate how the cultural effect on self-employment changes over time and in relationship to institutional factors. For how long do traditional beliefs and values stand against assimilation in the new institutional setting? Another topic is how different cultures affect the survival rate of enterprises. Are there some cultural attributes that seem to affect the success and failure of the self-employed? Studying how the cultural effect on self-employment decisions evolves over time and its implications on the survival rate would lead to a better and more comprehensive understanding of the connection between culture and self-employment.

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Appendix A. Regression Estimates

Table 1. First-Generation Immigrants, squared Age, GDP and Education

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SELFRATE	-0.00357	0.26082***	0.24999***	0.22478***	0.21827***	0.22189***	0.22181***	0.21516***	0.19165***	0.19161***	0.19144***	0.19150***
(respondent's country of birth)	(0.03002)	(0.04676)	(0.04426)	(0.04416)	(0.04396)	(0.04404)	(0.04404)	(0.04414)	(0.04393)	(0.04395)	(0.04395)	(0.04395)
year 2004	-0.00870	-0.00621	-0.00603	-0.00484	-0.00399	-0.00421	-0.00421	-0.00412	-0.00339	-0.00338	-0.00342	-0.00328
	(0.01074)	(0.01071)	(0.01091)	(0.01085)	(0.01086)	(0.01085)	(0.01085)	(0.01084)	(0.01083)	(0.01083)	(0.01083)	(0.01083)
year 2006	0.00066	0.00414	0.00403	0.00261	0.00196	0.00148	0.00144	0.00098	0.00164	0.00165	0.00160	0.00170
	(0.01127)	(0.01124)	(0.01158)	(0.01152)	(0.01151)	(0.01152)	(0.01152)	(0.01152)	(0.01148)	(0.01149)	(0.01149)	(0.01149)
year 2008	-0.01155	-0.00532	-0.00551	-0.00518	-0.00584	-0.00579	-0.00588	-0.00581	-0.00519	-0.00518	-0.00516	-0.00520
	(0.01035)	(0.01034)	(0.01059)	(0.01051)	(0.01050)	(0.01050)	(0.01051)	(0.01051)	(0.01046)	(0.01046)	(0.01046)	(0.01046)
year 2010	-0.02130*	-0.01433	-0.01356	-0.00959	-0.01053	-0.01025	-0.01023	-0.00993	-0.00783	-0.00792	-0.00793	-0.00782
	(0.01026)	(0.01025)	(0.01033)	(0.01030)	(0.01031)	(0.01031)	(0.01031)	(0.01032)	(0.01029)	(0.01031)	(0.01031)	(0.01031)
GDP (PPP) per capita		0.00001***	0.00001***	0.00001**	0.00001**	0.00001**	0.00001**	0.00001**	0.00001**	0.00001**	0.00001**	0.00001**
(respondent's country of birth)		(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
GDP (PPP) per capita^2		-0.00000	-0.00000	-0.00000	-0.00000	-0.00000	-0.00000	-0.00000	-0.00000	-0.00000	-0.00000	-0.00000
(respondent's country of birth)		(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Female			-0.06028***	-0.06103***	-0.06201***	-0.06126***	-0.06128***	-0.06144***	-0.06062***	-0.06062***	-0.06064***	-0.06046***
			(0.00628)	(0.00623)	(0.00623)	(0.00623)	(0.00623)	(0.00623)	(0.00621)	(0.00621)	(0.00621)	(0.00621)
Age				0.00639***	0.00579***	0.00481**	0.00481**	0.00488**	0.00512**	0.00512**	0.00510**	0.00508**
				(0.00151)	(0.00152)	(0.00158)	(0.00158)	(0.00158)	(0.00158)	(0.00158)	(0.00158)	(0.00158)
Age^2				-0.00004*	-0.00003	-0.00002	-0.00002	-0.00002	-0.00002	-0.00002	-0.00002	-0.00002
				(0.00002)	(0.00002)	(0.00002)	(0.00002)	(0.00002)	(0.00002)	(0.00002)	(0.00002)	(0.00002)
Years of education					0.00246	0.00237	0.00236	0.00257	0.00347	0.00348	0.00350	0.00361
					(0.00331)	(0.00331)	(0.00331)	(0.00332)	(0.00332)	(0.00332)	(0.00332)	(0.00331)
Years of education^2					0.00002	0.00002	0.00003	0.00002	-0.00002	-0.00002	-0.00002	-0.00002
					(0.00012)	(0.00012)	(0.00012)	(0.00012)	(0.00012)	(0.00012)	(0.00012)	(0.00012)
Lives with partner						0.01767**	0.01752**	0.01765**	0.01744**	0.01745**	0.01712*	0.01708*
						(0.00674)	(0.00676)	(0.00676)	(0.00674)	(0.00674)	(0.00677)	(0.00677)
Type of living area							0.00078	0.00067	0.00086	0.00086	0.00087	0.00075
							(0.00258)	(0.00258)	(0.00258)	(0.00258)	(0.00258)	(0.00257)
Mother is self-employed								0.04480**	0.02114	0.02114	0.02121	0.02118
								(0.01506)	(0.01545)	(0.01545)	(0.01545)	(0.01544)
Father is self-employed									0.06063***	0.06065***	0.06065***	0.06032***
									(0.00958)	(0.00958)	(0.00958)	(0.00957)
Time in the country										-0.00000	-0.00000	-0.00000
										(0.00001)	(0.00001)	(0.00001)
Children											-0.00334	-0.00325
											(0.00949)	(0.00949)
Agriculture/fishing												0.07530
												(0.06004)
Intercept	0.12346***	-0.00885	0.02315	-0.15578***	-0.17477***	-0.16601***	-0.16756***	-0.16975***	-0.18470***	-0.18484***	-0.18472***	-0.18528***
	(0.00953)	(0.02303)	(0.02168)	(0.03633)	(0.04246)	(0.04263)	(0.04297)	(0.04301)	(0.04306)	(0.04307)	(0.04307)	(0.04301)

Footnote: * p<0.05; ** p<0.01; *** p<0.001. Robust standard errors in parenthesis.

Table 2. First-Generation Immigrants, non-squared

	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
SELFRATE	-0.00357	0.23030***	0.21941***	0.20415***	0.19696***	0.20018***	0.20009***	0.19405***	0.16723***	0.16723***	0.16680***	0.16678***
(respondent's country of birth)	(0.03002)	(0.04085)	(0.03862)	(0.03852)	(0.03840)	(0.03846)	(0.03846)	(0.03856)	(0.03839)	(0.03839)	(0.03838)	(0.03836)
year 2004	-0.00870	-0.00650	-0.00632	-0.00518	-0.00425	-0.00449	-0.00448	-0.00439	-0.00371	-0.00370	-0.00376	-0.00362
	(0.01074)	(0.01071)	(0.01090)	(0.01085)	(0.01085)	(0.01084)	(0.01085)	(0.01084)	(0.01083)	(0.01083)	(0.01083)	(0.01083)
year 2006	0.00066	0.00365	0.00354	0.00211	0.00149	0.00101	0.00097	0.00050	0.00103	0.00103	0.00097	0.00107
	(0.01127)	(0.01123)	(0.01158)	(0.01151)	(0.01150)	(0.01151)	(0.01151)	(0.01151)	(0.01148)	(0.01148)	(0.01148)	(0.01148)
year 2008	-0.01155	-0.00562	-0.00581	-0.00623	-0.00677	-0.00648	-0.00656	-0.00650	-0.00597	-0.00596	-0.00592	-0.00595
	(0.01035)	(0.01034)	(0.01059)	(0.01051)	(0.01050)	(0.01050)	(0.01050)	(0.01050)	(0.01045)	(0.01046)	(0.01046)	(0.01046)
year 2010	-0.02130*	-0.01447	-0.01370	-0.01094	-0.01168	-0.01099	-0.01097	-0.01070	-0.00873	-0.00881	-0.00879	-0.00867
	(0.01026)	(0.01025)	(0.01033)	(0.01027)	(0.01027)	(0.01028)	(0.01029)	(0.01029)	(0.01026)	(0.01028)	(0.01029)	(0.01029)
GDP (PPP) per capita		0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000(PPP)	0.00000***
(respondent's country of birth)		(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Female			-0.06027***	-0.06080***	-0.06191***	-0.06113***	-0.06115***	-0.06130***	-0.06042***	-0.06042***	-0.06045***	-0.06027***
			(0.00628)	(0.00623)	(0.00622)	(0.00622)	(0.00622)	(0.00622)	(0.00620)	(0.00620)	(0.00620)	(0.00620)
Age				0.00323***	0.00324***	0.00311***	0.00311***	0.00310***	0.00304***	0.00304***	0.00310***	0.00309***
				(0.00027)	(0.00027)	(0.00027)	(0.00027)	(0.00027)	(0.00027)	(0.00027)	(0.00030)	(0.00030)
Years of education				0.00317***	0.00314***	0.00316***	0.00310***	0.00310***	0.00310***	0.00310***	0.00308***	0.00312***
				(0.00085)	(0.00085)	(0.00085)	(0.00085)	(0.00085)	(0.00085)	(0.00085)	(0.00085)	(0.00085)
Lives with partner					0.01929**	0.01913**	0.01935**	0.01942**	0.01944**	0.01892**	0.01887**	
					(0.00655)	(0.00656)	(0.00656)	(0.00655)	(0.00656)	(0.00659)	(0.00659)	
Type of living area					0.00078	0.00069	0.00091	0.00090	0.00092	0.00080		
					(0.00258)	(0.00258)	(0.00257)	(0.00257)	(0.00257)	(0.00257)		
Mother is self-employed						0.04471**	0.02116	0.02116	0.02127	0.02123		
						(0.01505)	(0.01545)	(0.01545)	(0.01545)	(0.01544)		
Father is self-employed							0.06007***	0.06009***	0.06008***	0.05975***		
							(0.00956)	(0.00956)	(0.00956)	(0.00955)		
Time in the country								-0.00000	-0.00000	-0.00000		
								(0.00001)	(0.00001)	(0.00001)		
Children								-0.00446	-0.00436			
								(0.00947)	(0.00947)			
Agriculture/fishing								0.07537				
								(0.06001)				
Intercept	0.12346***	0.01308	0.04514**	-0.07879***	-0.11461***	-0.12313***	-0.12496***	-0.12442***	-0.12559***	-0.12563***	-0.12660***	-0.12684***
	(0.00953)	(0.01621)	(0.01598)	(0.01884)	(0.02146)	(0.02147)	(0.02251)	(0.02250)	(0.02248)	(0.02248)	(0.02260)	(0.02259)

Footnote: * p<0.05; ** p<0.01; *** p<0.001. Robust standard errors in parenthesis.

Table 3. Second-Generation Immigrants using Father's Country of Birth

	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
SELFRATE	0.01315	0.18140***	0.16814***	0.17317***	0.17163***	0.17365***	0.17368***	0.16611***	0.14563***	0.14466***	0.14435***
(father's country of birth)	(0.02935)	(0.03812)	(0.03773)	(0.03754)	(0.03753)	(0.03757)	(0.03758)	(0.03765)	(0.03753)	(0.03753)	(0.03748)
year 2004	-0.00646	-0.00644	0.01219	0.00912	0.01036	0.00934	0.00934	0.00932	0.00937	0.00895	0.00850
	(0.00925)	(0.00924)	(0.00866)	(0.00860)	(0.00860)	(0.00861)	(0.00861)	(0.00859)	(0.00857)	(0.00857)	(0.00856)
year 2006	(omitted)	(omitted)	0.01802*	0.01092	0.01063	0.00926	0.00925	0.00869	0.00871	0.00825	0.00736
			(0.00845)	(0.00842)	(0.00841)	(0.00843)	(0.00844)	(0.00844)	(0.00842)	(0.00843)	(0.00842)
year 2008	-0.00543	-0.00349	0.01523*	0.00782	0.00740	0.00671	0.00667	0.00633	0.00591	0.00575	0.00489
	(0.00878)	(0.00877)	(0.00749)	(0.00744)	(0.00744)	(0.00744)	(0.00746)	(0.00745)	(0.00742)	(0.00741)	(0.00741)
year 2010	-0.02147*	-0.01920*	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
	(0.00864)	(0.00863)									
GDP (PPP) per capita		0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***
(father's country of birth)		(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Female			-0.05078***	-0.05292***	-0.05404***	-0.05317***	-0.05316***	-0.05351***	-0.05290***	-0.05302***	-0.05202***
			(0.00564)	(0.00559)	(0.00559)	(0.00559)	(0.00559)	(0.00559)	(0.00556)	(0.00557)	(0.00556)
Age				0.00341***	0.00339***	0.00322***	0.00322***	0.00318***	0.00313***	0.00334***	0.00332***
				(0.00023)	(0.00023)	(0.00024)	(0.00024)	(0.00024)	(0.00024)	(0.00026)	(0.00026)
Years of education					0.00313***	0.00307***	0.00308***	0.00303***	0.00303***	0.00296***	0.00312***
					(0.00080)	(0.00080)	(0.00080)	(0.00080)	(0.00080)	(0.00080)	(0.00080)
Lives with partner						0.02012***	0.02008***	0.02032***	0.02014***	0.01847**	0.01814**
						(0.00577)	(0.00578)	(0.00578)	(0.00576)	(0.00577)	(0.00576)
Type of living area							0.00021	0.00013	0.00042	0.00049	-0.00005
							(0.00223)	(0.00223)	(0.00222)	(0.00223)	(0.00222)
Mother is self-employed								0.05592***	0.02809	0.02879	0.02655
								(0.01464)	(0.01480)	(0.01481)	(0.01470)
Father is self-employed									0.07303***	0.07290***	0.07129***
									(0.00937)	(0.00938)	(0.00937)
Children										-0.01636	-0.01642
										(0.00869)	(0.00868)
Agriculture/fishing											0.18587***
											(0.05266)
Intercept	0.11583	0.03755	0.04780	-0.07894	-0.11617	-0.12115	-0.12166	-0.11973	-0.12232	-0.12608	-0.12628
	(0.00844)	(0.01413)	(0.01331)	(0.01514)	(0.01794)	(0.01794)	(0.01897)	(0.01895)	(0.01889)	(0.01896)	(0.01895)

Footnote: * $p<0.05$; ** $p<0.01$; *** $p<0.001$. Robust standard errors in parenthesis.

Table 4. Second-Generation Immigrants using Mother's Country of Birth

	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)
SELFRATE	0.02112	0.21255***	0.20242***	0.20037***	0.19656***	0.20041***	0.20040***	0.19143***	0.17114***	0.16918***	0.16844***
(mother's country of birth)	(0.02934)	(0.03884)	(0.03853)	(0.03820)	(0.03823)	(0.03826)	(0.03826)	(0.03838)	(0.03821)	(0.03820)	(0.03810)
year 2004	-0.01185	-0.01166	0.00061	-0.00239	-0.00084	-0.00195	-0.00197	-0.00197	-0.00235	-0.00277	-0.00292
	(0.00931)	(0.00929)	(0.00877)	(0.00871)	(0.00872)	(0.00871)	(0.00872)	(0.00869)	(0.00868)	(0.00868)	(0.00868)
year 2006	(omitted)	(omitted)	0.01175	0.00525	0.00452	0.00309	0.00310	0.00226	0.00186	0.00145	0.00109
			(0.00846)	(0.00845)	(0.00844)	(0.00846)	(0.00846)	(0.00846)	(0.00844)	(0.00845)	(0.00844)
year 2008	0.00122	0.00382	0.01615*	0.01004	0.00950	0.00873	0.00878	0.00881	0.00810	0.00805	0.00734
	(0.00885)	(0.00884)	(0.00766)	(0.00762)	(0.00761)	(0.00761)	(0.00764)	(0.00763)	(0.00761)	(0.00761)	(0.00760)
year 2010	-0.01527	-0.01230	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
	(0.00866)	(0.00865)									
GDP (PPP) per capita		0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***
(mother's country of birth)		(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Female			-0.05016***	-0.05135***	-0.05281***	-0.05201***	-0.05201***	-0.05186***	-0.05130***	-0.05138***	-0.05028***
			(0.00567)	(0.00563)	(0.00562)	(0.00562)	(0.00562)	(0.00561)	(0.00559)	(0.00559)	(0.00559)
Age				0.00312***	0.00310***	0.00292***	0.00292***	0.00289***	0.00284***	0.00306***	0.00302***
				(0.00023)	(0.00023)	(0.00024)	(0.00024)	(0.00024)	(0.00024)	(0.00026)	(0.00026)
Years of education					0.00372***	0.00365***	0.00364***	0.00358***	0.00356***	0.00349***	0.00364***
					(0.00083)	(0.00083)	(0.00083)	(0.00083)	(0.00083)	(0.00083)	(0.00083)
Lives with partner						0.02084***	0.02089***	0.02145***	0.02094***	0.01916**	0.01888**
						(0.00588)	(0.00588)	(0.00588)	(0.00586)	(0.00587)	(0.00587)
Type of living area							-0.00032	-0.00043	-0.00024	-0.00017	-0.00070
							(0.00228)	(0.00228)	(0.00227)	(0.00227)	(0.00227)
Mother is self-employed								0.06678***	0.04337**	0.04415**	0.04239**
								(0.01508)	(0.01530)	(0.01530)	(0.01522)
Father is self-employed									0.06325***	0.06321***	0.06150***
									(0.00928)	(0.00928)	(0.00928)
Children										-0.01740	-0.01720
										(0.00866)	(0.00865)
Agriculture /fishing											0.21122***
											(0.05797)
Intercept	0.11287***	0.02434	0.03991**	-0.07418***	-0.11767***	-0.12338***	-0.12260***	-0.12146***	-0.12259***	-0.12648***	-0.12586***
	(0.00838)	(0.01446)	(0.01356)	(0.01532)	(0.01810)	(0.01805)	(0.01901)	(0.01901)	(0.01897)	(0.01903)	(0.01901)

Footnote: * p<0.05; ** p<0.01; *** p<0.001. Robust standard errors in parenthesis.

Table 5. Second-Generation Immigrants using Parents' Country of Birth

	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)
SELFRATE	0.01670	0.27032***	0.25292***	0.23102***	0.22845***	0.23217***	0.23202***	0.22055***	0.19448***	0.19292***	0.19301***
(parents' country of birth)	(0.03504)	(0.04566)	(0.04491)	(0.04472)	(0.04474)	(0.04483)	(0.04485)	(0.04500)	(0.04474)	(0.04472)	(0.04459)
year 2004	(omitted)	(omitted)	0.00497	0.00260	0.00336	0.00232	0.00231	0.00212	0.00142	0.00118	0.00092
			(0.01071)	(0.01065)	(0.01067)	(0.01066)	(0.01067)	(0.01063)	(0.01058)	(0.01059)	(0.01057)
year 2006	0.01377	0.01347	0.01722	0.01154	0.01129	0.00936	0.00940	0.00845	0.00797	0.00755	0.00670
	(0.01151)	(0.01145)	(0.01047)	(0.01044)	(0.01043)	(0.01049)	(0.01049)	(0.01051)	(0.01049)	(0.01051)	(0.01048)
year 2008	0.00053	0.00348	0.00817	0.00269	0.00258	0.00175	0.00189	0.00144	0.00069	0.00077	-0.00027
	(0.01093)	(0.01088)	(0.00901)	(0.00896)	(0.00896)	(0.00895)	(0.00898)	(0.00897)	(0.00894)	(0.00893)	(0.00893)
year 2010	-0.00989	-0.00535	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)	(omitted)
	(0.01082)	(0.01078)									
GDP (PPP) per capita		0.00001***	0.00001***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***	0.00000***
(parents' country of birth)		(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Female			-0.05285***	-0.05462***	-0.05531***	-0.05426***	-0.05427***	-0.05453***	-0.05358***	-0.05355***	-0.05211***
			(0.00684)	(0.00680)	(0.00680)	(0.00680)	(0.00680)	(0.00679)	(0.00677)	(0.00677)	(0.00675)
Age				0.00318***	0.00318***	0.00299***	0.00299***	0.00295***	0.00285***	0.00305***	0.00299***
				(0.00029)	(0.00029)	(0.00030)	(0.00030)	(0.00030)	(0.00030)	(0.00033)	(0.00033)
Years of education					0.00170	0.00166	0.00164	0.00155	0.00158	0.00152	0.00173
					(0.00095)	(0.00095)	(0.00095)	(0.00095)	(0.00095)	(0.00095)	(0.00095)
Lives with partner						0.02291**	0.02307**	0.02318***	0.02252**	0.02089**	0.02016**
						(0.00702)	(0.00703)	(0.00702)	(0.00701)	(0.00702)	(0.00701)
Type of living area							-0.00085	-0.00104	-0.00070	-0.00062	-0.00138
							(0.00272)	(0.00271)	(0.00270)	(0.00270)	(0.00269)
Mother is self-employed								0.06866***	0.04043*	0.04125*	0.03883*
								(0.01855)	(0.01881)	(0.01882)	(0.01867)
Father is self-employed									0.07049***	0.07045***	0.06766***
									(0.01127)	(0.01128)	(0.01128)
Children										-0.01537	-0.01527
										(0.01035)	(0.01033)
Agriculture/fishing											0.24210***
											(0.06715)
Intercept	0.10370***	-0.01585	0.01024	-0.09888***	-0.11831***	-0.12555***	-0.12355***	-0.11993***	-0.11994***	-0.12352***	-0.12262***
	(0.01048)	(0.01737)	(0.01634)	(0.01845)	(0.02147)	(0.02152)	(0.02263)	(0.02260)	(0.02252)	(0.02260)	(0.02255)

Footnote: * $p<0.05$; ** $p<0.01$; *** $p<0.001$. Robust standard errors in parenthesis.

Appendix B. Sample descriptives, first- and second-generation immigrants

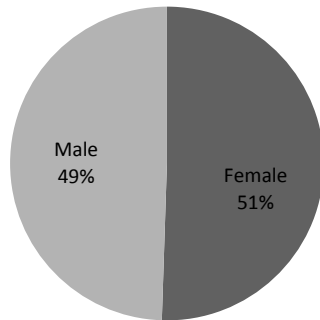**Figure 2.** Respondents by gender, first-generation immigrants

Male 49%
Female 51%

Figure 3. Self-employed respondents by gender, first-generation immigrants
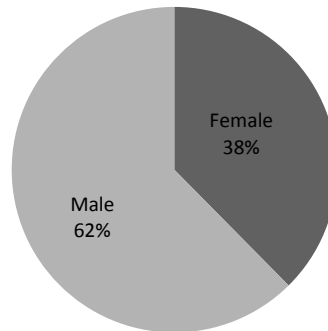
Female 38%
Male 62%

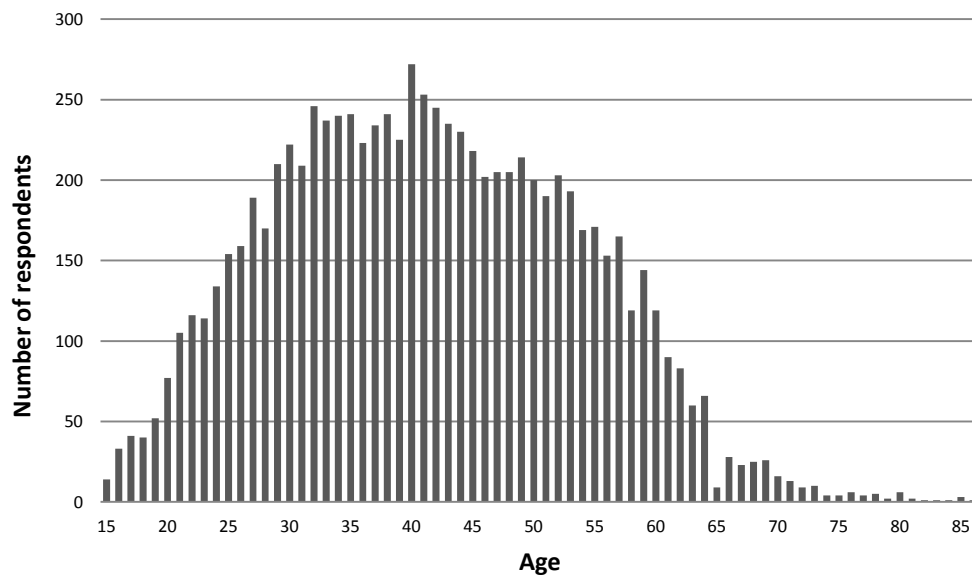**Figure 4.** Distribution of age, first-generation immigrants

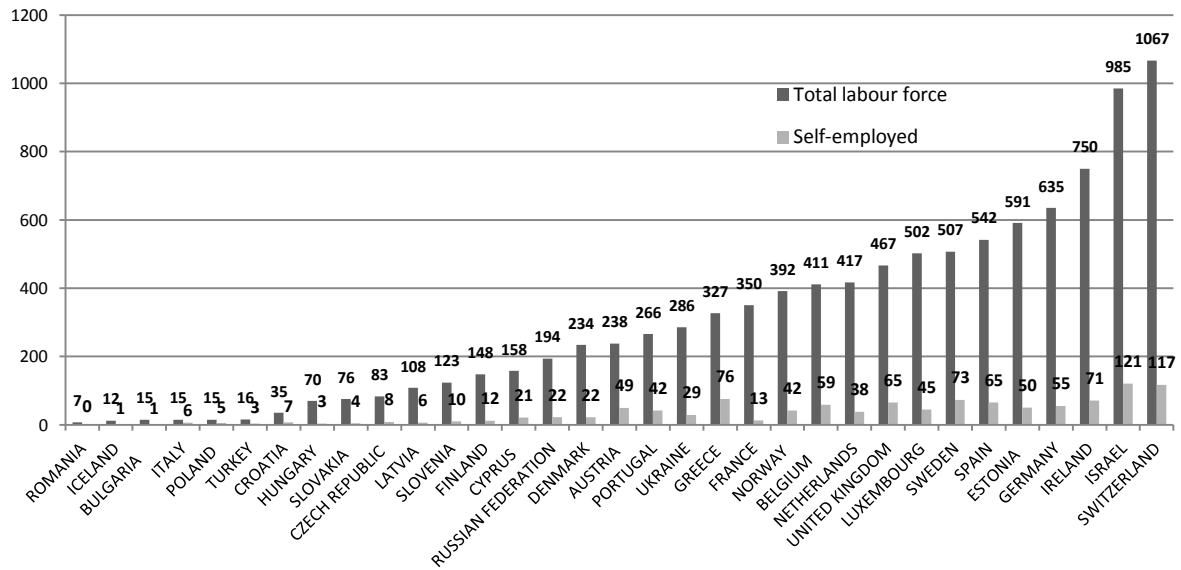**Figure 5.** Number of respondents per country - first generation immigrants
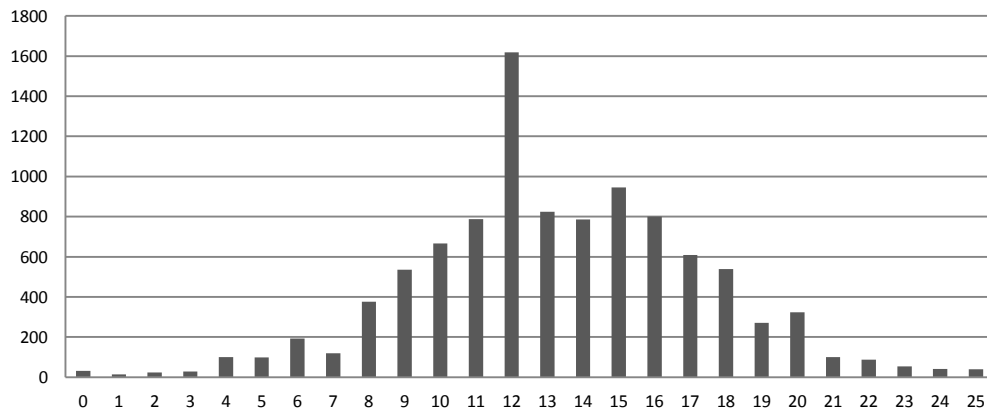

Figure 6. Years of education - first generation immigrants

Figure 7. Self-employed respondents by gender, second-generation immigrants
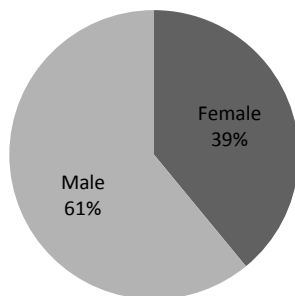
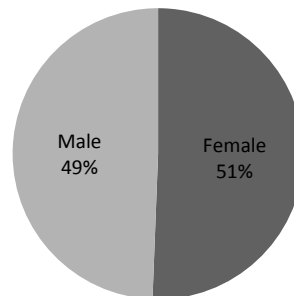**Figure 8.** Respondents by gender, second-generation immigrants

Figure 9. Number of respondents per country - second generation immigrants
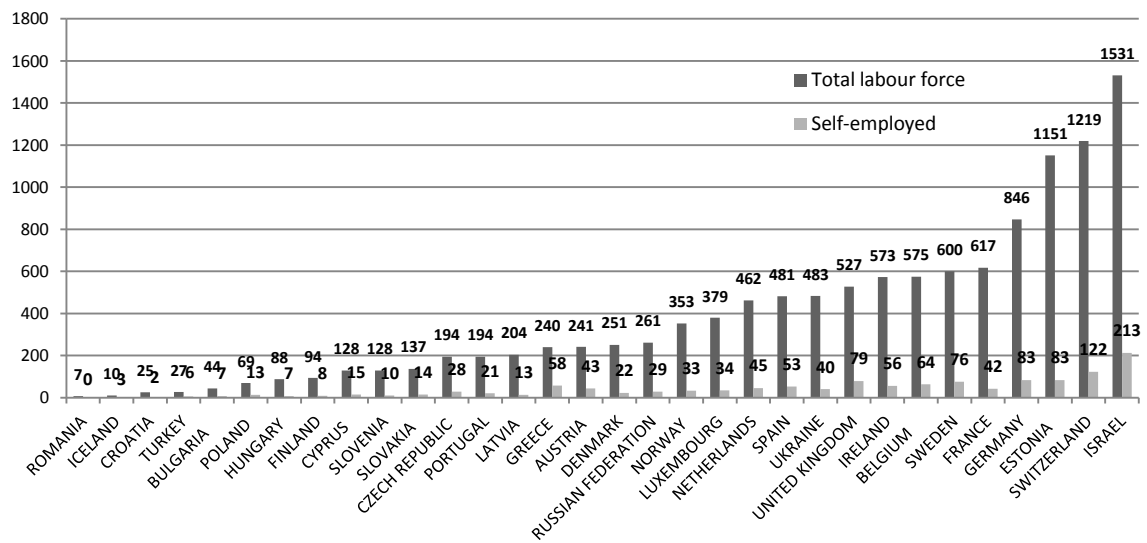

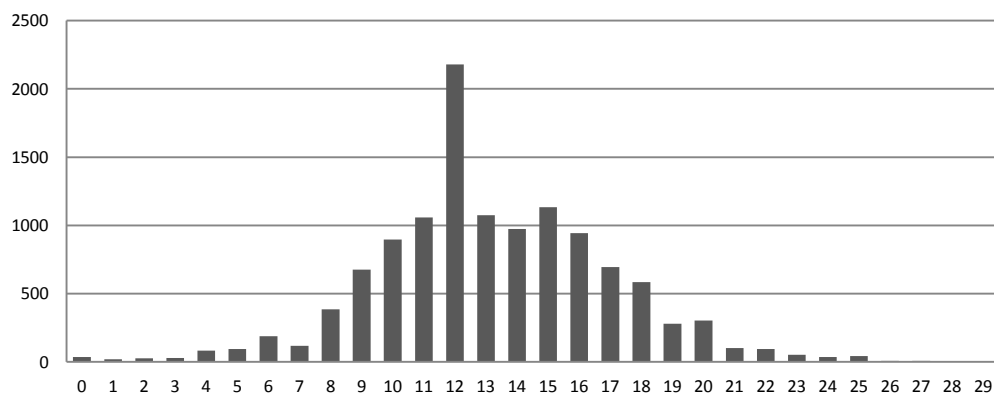**Figure 10.** Years of education - second generation immigrants

Figure 11. Distribution of age, second-generation immigrants