Entrepreneurial activity in the OECD: Pooled and cross-country evidence

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Entrepreneurial activity in the OECD:
Pooled and cross-country evidence

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Abstract

This paper analyzes the role of innovation, and other socio-demographic variables, in the entrepreneurial activity in the OECD. We use the index from the GEM 2014 Global Individual Level database, which contains international micro-data for individuals. Our pooled and cross-country results show that young male individuals tend to entrepreneur more than their counterparts. Innovation is also positive strongly related to entrepreneurship. Furthermore, making use of unbiased estimates based on relatively novel and underused techniques we give strong robustness to this result. We find that family and well-being variables follow a mixed relationship with entrepreneurship. Skills, transmission by meeting and opportunities also play an important role.

Keywords: Entrepreneurship, TEA, OECD.
JEL Classification: L26, C21, O30, D60.

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1 Introduction

Entrepreneurial activity is a potential labor alternative to paid employment, and is a strong engine of growth in several countries (Porter 1990; Acs 1992; Gonzalez and Montero 2014). Furthermore, during the recent economic crisis there have been countries where paid employment rates have suffered damaging decreases, but the levels of self-employment and entrepreneurship have not been so badly affected (e.g., Congregado et al 2010 for the case of Spain[1]). Entrepreneurial activity and its related factors are important, not only as an academic issue, but also as an institutional and policy concern. Entrepreneurial analyses normally follow a macroeconomic approach, focusing on the role of government support, institutions, taxes, and the macroeconomic context promoting the entrepreneurial activity (Lundstrom and Stevenson 2002; Amorós et al. 2012; Berrios-Lugo and Espina 2014). Studies such as these allow us to consider how the level of entrepreneurship, generally measured through the TEA index from the Global Entrepreneurship Monitor (GEM) Observatory, varies across countries, depending on a range of characteristics[2]. However, those analyses based on aggregated national actors do not allow us to take into account individual attributes, such as individual earnings, or appreciation of the environment, because of the difficulty and the loss of information associated with measuring them on an aggregated scale.

Our aim is to analyze the factors related to entrepreneurial activity in the OECD, following a microeconomic approach in order to take into account certain underused variables. Thus, this paper addresses the question of which factors determine entrepreneurial activity, in a setting that focuses on the point of view of individuals. We place strong emphasis on groups of independent variables, personal, family and labor, well-being, innovation, and others (opportunities to become an entrepreneur, self-consideration of entrepreneurial skills, and transmission of the entrepreneurial spirit), as well as individual socio-demographic variables.

Prior analyses have found that men are more willing to be entrepreneurs than women (Blanchflower 2000; Estrin and Mickiewicz 2011; Mussurov and Arabsheibani 2015), and

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[1] See, for example, García and Molina (1998 and 2002), García et al. (2010), Molina and Montuenga (2009), Giménez et al. (2012) and Giménez and Molina (2014, 2016) on the Spanish labour market; and Barrado and Molina (2015) and Campaña et al. (2016) about regional and international comparisons of self-employement and entrepreneurship.
[2] The TEA (Total Early-Stage of Entrepreneurial Activity) index measures the percentage of the working age population both about to embark on entrepreneurial activity, and who have been entrepreneurs for a maximum of 42 months (http://www.gemconsortium.org/wiki/1150).

that younger individuals also tend more to become entrepreneurs (Davidsson 1989; Schott and Bagger 2004; Kelley 2009). Hoang and Antoncic (2003), Arenius and Minniti (2005), Cooper and Yin (2005), Minniti (2005) and Ramos-Rodriguez et al. (2010) all analyze the effect of interaction and social nets on entrepreneurial activity. Holcomb et al. (2009) analyze the effect of learning by seeing; and Blumberg and Pfann (2015) study entrepreneurship in individuals whose parents were entrepreneurs, finding positive associations in all cases. Regarding the skills of an entrepreneur, Minniti (2009), and Minniti and Nardone (2007) analyze the importance of the self-consideration of individual skills, also finding positive associations. Kyrö (2015) argues that entrepreneurship is a new form of pedagogy and highlights the importance of the educational features of entrepreneurship, and according to the model of Brixiobá et al (2015), the more entrepreneurship skills, the easier it is to turn new ideas into new business, showing and relating the importance of both skills and innovation. Furthermore, according to Schumpeter (1934) and Gilbert et al (2006), there is a component of entrepreneurial activity that arises from new ideas and innovation. This is what it is called entrepreneurship due to innovation. Innovation may be a key to entrepreneurship success, either via more customers (Kleinschmidt and Cooper 1991) or via business growth (Cho and Pucik 2005). In a recent analysis, Molina et al (2015) find that household finances are related to the entrepreneurial activity in Spain, and they argue that this relationship may be conducted or transmitted by well-being and psychological factors (Dawson et al. 2015; Cueto et al. 2015), which highlights the importance of calling in becoming an entrepreneur.

Our logistic regression analysis allows us to show that being male is positively related to the probability of becoming or being an entrepreneur, while age is negatively related. Education level, innovation, skills, opportunities, and meeting transmission are also positively associated with entrepreneurship. However, we find that the well-being variables point to a mixed relationship with entrepreneurship. Additionally, we analyze the predictive power of the dependent variables by using a less-biased statistical approach (Giménez-Nadal et al 2016), which shows the importance of the innovation factors, which provides robustness to our previous results. Furthermore, we find that innovation in both products and technologies is a key factor in determining whether an individual contributes, or not, to the TEA index, and their inclusion supposes by far the most significant improvement in the model across the rest of our considered variables.

Our contributions are threefold. First, we use the GEM Global Individual database for the year 2014, which contains, to the best of our knowledge, the most current data available. The

GEM is characterized by the quality of the data that is assembled annually. Second, we make use of a microeconomic logistic regression approach, which is not common in this field. We also use a relatively novel and underused statistical tool to correctly measure the significance of the relationship between independent and dependent variables, avoiding biases. Finally, we include in our model certain variables that are measureable in our microeconomic setting, but not easily in aggregated terms, such us well-being, innovation, and personal skills. To the extent that all of these variables have a significant relationship with the TEA index, we can conclude that its inclusion in entrepreneurial models should be considered.

The rest of the paper is organized as follows. Section 2 describes the data and variables used. Section 3 sets our empirical strategy, the results are shown in Section 4, and Section 5 presents the main conclusions of our analysis.

2 Data and variables

We use the data collected in the GEM 2014 Global Individual Level Database, which contains information for the year 2013, to analyze entrepreneurial activity measured through the TEA index in the OECD Countries. This database contains harmonized cross-sectional micro-data about entrepreneurial-related factors of individuals worldwide. We examine factors such as innovation, motivations to become an entrepreneur, and life and job-satisfaction variables, along with personal (gender, age, educational level, income), family (family size, number of children) and labor (experience, kind of employment, unemployed, retired) variables. The data is based on international stylized-question surveys and it is published annually by GEM. More information about GEM databases can be found at http://www.gemconsortium.org/data/sets. The advantage of our data is that it contains near-current information about entrepreneurial factors and it is sourced directly from GEM, which is characterized by developing and providing high quality data about entrepreneurship. Furthermore, we have a large, high-quality international sample, which allows us to develop an international analysis.

Our sample is composed of individuals who reside in OECD countries.[3] This leaves us with 93,625 individuals, 45,837 male and 47,798 female. Furthermore, when we differentiate

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[3] Our database includes information about the following OECD countries: United States, Greece, Netherlands, Belgium, France, Spain, Hungary, Switzerland, Sweden, Norway, Poland, Germany, Mexico,

by occupation, we have 59,754 employed individuals, 6,270 homemakers, 6,076 students, 10,448 unemployed (or individuals who do not work), and 11,087 retired or disabled individuals.

Tables 1 and 2 show summary descriptive statistics of variables for male and female individuals, respectively, by labor status. Results are statistically different among groups of individuals for each gender. The labor status variable is coded in the GEM database as "gemoccu" and we have transformed it into dummy variables (merging, on the one hand, full- and part-time employees, and on the other hand, retired and not working individuals). We also show Kruskal-Wallis test p-values. This statistical test, under the null hypothesis of equal means, can be interpreted as a test of equality of means, and is more accurate than a t-test or ANOVA-test in our case, because the latter rely on normality, which is not applicable here. Looking at our main variable, contribution to TEA, we observe that 12.4% (9.1%) of the male (female) employed individuals contribute to TEA, indicating that 12.4% and 9.1%, respectively, of the male and female employed individuals in our sample are entrepreneurs. On the other hand, only 4.4% (2.0%), 3.0% (2.1%) and 8.2% (2.1%) of the male (female) retired or unemployed, students and homemakers, contribute to TEA, respectively. These differences are statistically significant. The pattern is clear because active individuals (excluding homemakers) are more willing to become entrepreneurs and, in addition, men are more likely than women to be entrepreneurs.

(Table 1 about here)

(Table 2 about here)

Considering age, we can see in Tables 1 and 2 how male employed individuals are slightly younger than female (41.7 *vs* 41.9 years, respectively), and the same is observed for the retired and the unemployed, and students (50.6 *vs* 51.9 and 22.0 *vs* 22.3 respectively). However, trends reverse for the homemakers (48.9 for male and 46.4 for female homemakers). When we focus on educational level, we define three dummies, constructed from GEM's "uneduc" variable: basic education (no primary and primary), secondary education (low secondary, secondary and secondary but not University) and University education (first and second stage of University). We notice that there are individuals who do not report any value for the education variables so, in the regressions, they will be considered

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Chile, Japan, South Korea, Canada, Portugal, Luxembourg, Ireland, Finland, Estonia, Slovenia, Czech Republic, Slovakia, and Israel.

in the control group (basic educational level). In general, a higher proportion of male individuals have secondary education than female, although a greater proportion of women have University education. Basic educational level proportions only vary meaningfully by gender for the homemakers (more basic education male homemakers than female ones). In all cases, the greater proportion of individuals have secondary educational level. Regarding income level, we take GEM's income recoded into thirds (GEM's "gemhhinc" code) and create three dummies: low, middle, and high income. There is a higher proportion of men than women in the high income level for all the categories, which agrees with the commonly-identified gender gap in payment and wages (e.g., Olivetti and Petrongolo 2014). On the other hand, there is a higher proportion of employed and homemaker women than men with middle income, although these proportions do not vary greatly by gender for the rest of categories. Finally, for the low income case, in the three former categories, the pattern is clear and there is a higher proportion of women than men, and a lower proportion for the homemakers. Group differences are, in all cases, statistically significant. These variables are important in determining contributions to TEA because, first, it is necessary to determine whether education plays a key role in entrepreneur activity, by either encouragement or discouragement. Second, there may be an age-dependence of entrepreneurship. Finally, income may be related to entrepreneurship in one of three ways: income related to entrepreneurial activity, i.e., entrepreneurial outcomes; low income individuals who may become entrepreneurs due to necessity, or because they want higher earnings; and wealthy individuals who may become entrepreneurs through access to their own economic resources (e.g., Molina et al. 2015).

We have defined other variables that may affect TEA, such as family size, number of children, experience, transmission, skills, and opportunities. Family size and number of children are collected in the GEM database (coded as "hhsize" and "echhsize18" respectively), and we have defined experience as years in the current job (from GEM's "ecempwageyr"). Finally, we measure transmission through the dummy variable "know someone who is an entrepreneur" ("knowent" code in GEM) (it is possible that individuals have incentives to be entrepreneurs if they meet someone with entrepreneurial experience and has been successful), skills through the dummy "consider to have skills of an entrepreneur" ("suskill" code), and opportunities through the dummy "opportunities to become an entrepreneur" ("opport" code). We observe in Tables 1 and 2 how, for men and women, employed, retired, and unemployed families are slightly less numerous than student and

homemaker ones. Moreover, women tend to have more children than men, except for homemakers. Regarding experience, we observe how employed women have more average experience than men (4.4 *vs* 3.6 years, respectively), but the opposite is the case for the rest of the categories. We observe that in our database there are more males who know someone with entrepreneurial experience than females. Furthermore, among the employed (both men and women), a higher proportion of individuals know someone who has recently been an entrepreneur. We can observe in Tables 1 and 2 that men have a higher self-consideration of their own skills, in all categories. In addition, for both genders, employed individuals, on average, have higher self-consideration of their skills, while males are considered to have more opportunities to be entrepreneurs than females - and again, the higher proportion is concentrated in employees of both genders.

We also take into account innovation and well-being variables, whose direct inclusion in empirical modeling is, to the best of our knowledge, a novel approach in the study of entrepreneurial activity. First, there is a presumable strong element of entrepreneurship that is due to necessity or vocation. However, there also exists a component of entrepreneurship that arises from new ideas and products (Schumpeter 1934) and novel technologies (Gilbert et al. 2006). In order to measure innovation and its weight in entrepreneurship, we make use of the dummy variables "new product" and "new technology". These variables are constructed from the GEM database: the former is a merger of GEM "sunewcst" and "unnewcst" (whether potential customers consider the product/service new or unfamiliar) and the latter of "sunewtec" and "unnewtec" (years since technologies or procedures were available), and takes value 1 if the value is less than 5. Tables 1 and 2 show that 9.9% (7.1%) of the male (female) employed individuals consider having a new product or service. In addition, 3.6% (5.6%) of the male (female) employed individuals who contribute to TEA consider that they are offering a product developed through a new technology. The proportions are considerably lower for the rest of the categories of individuals, as could be expected, for both men and women, although they are slightly higher for men. When we focus on well-being, we include the dummy variables "ideal life" ("wlidl" code in GEM's database), "good conditions of life" ("wlexl"), "satisfied with life" ("wlslf"), "have obtained important things in life" ("wlimp"), "satisfied with job" ("ecsatf") and "satisfied with job income" ("ecinc"). According to our framework, well-being variables might affect the entrepreneurial decision positively if an individual feels attracted by entrepreneurship (Cueto et al. 2015), but also they may be negatively related because an individual who lives comfortably as a paid worker apparently

does not have incentives to entrepreneur in order to improve its satisfaction. In general, the employed and students are the most satisfied with their life, for both men and women. Furthermore, women tend to be slightly more satisfied than men.

3 Empirical strategy

Since our dependent variable is categorical, we must make use of binary empirical models. Thus, we estimate logistic regressions via Maximum Likelihood on the contribution to the TEA index. The statistical model is as follows. For a given individual *'i'*, let TEA_i be the dependent variable "contribution to TEA index", P_i a vector of personal variables (gender, age, education variables, and experience), F_i a vector of familiar variables (family size and number of children), L_i a vector of labor variables (labor status, according to Tables 1 and 2 heads), W_i a vector of well-being and satisfaction variables, I_i a vector of innovation variables (new product and new technologies), R_i represents opportunities, transmission, and skills, and ε_i is a random variable that represents unmeasured factors. As we have said above, to the best of our knowledge, the inclusion of innovation and well-being variables in this kind of empirical model for entrepreneurship is a novel approach. We control gender for women. For the education variables, we include "secondary education" and "University education", and take "basic education" (and nulls) as reference. The same is done for income variables, taking as reference "low income". We also control for labor status by the retired and unemployed individuals. We then estimate the following equation:

$$f(TEA_i) = \beta_0 + \beta_1 P_i + \beta_2 F_i + \beta_3 L_i + \beta_4 W_i + \beta_5 I_i + \beta_6 R_i + \varepsilon_i \qquad (1)$$

where $f(.)$ is the logit function of the dependent variable. We include ε_i as robust standard errors to control the presence of heteroskedasticity[4]. We also include country fixed effects. Since the logit function is a strictly increasing monotone function of the probability of contributing to TEA, positive (negative) coefficients mean that increases in the corresponding independent variables are related to increases (decreases) in the probability of contributing to TEA.

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[4] We repeat logistic regression estimates with country-clustered standard erros to control for heteroskedasticity across countries. Results do not meaningfully vary and are available on request.

Given our theoretical framework, we would expect $\beta_5, \beta_6 > 0$ and a positive relationship between contributions to TEA and innovation, transmission, opportunities, and self-consideration of skills. We also expect that education, age, and the fact of being male follow a positive relationship with TEA. Relationships between the dependent variable and the well-being module are not so clear and there is no prior research. On the one hand, individuals who are satisfied with their life, with their job, with their income, and who have good conditions of life do not look to have incentives to entrepreneur, at least due to necessity. On the other hand, there is evidence (Molina et al. 2015) that indicates that good conditions of life and a good financial situation encourage entrepreneurship because of positive thinking and financial security.

4. Results

4.1 Pooled Results

Table 3 shows the results of estimating (1). Column 1 is restricted to personal, family, and labor variables, i.e., $\beta_4 = \beta_5 = \beta_6 = 0$. In Column 2, we relax our assumption to $\beta_5 = \beta_6 = 0$ (we include well-being variables). We find that being male is meaningful and positively related to contributing to TEA, which means that male workers tend more to entrepreneurs, as expected according to the literature. In addition, younger individuals also tend more to be entrepreneurs. Education is positively related to entrepreneurship, as expected according to the literature (e.g., Bosma et al. 2004; Cooper et al. 1994; Levie and Autio 2013; Fritsch et al. 2015). Thus, the higher the level of education, the greater the probability of contributing to TEA. Experience is negatively related to TEA, which agrees with our previous result about age, and suggests that younger individuals who do not have much experience are more willing to become entrepreneurs. The number of children and family size are positively related to entrepreneurship, which agrees with Blanchflower (2000). There is evidence of the more flexible schedules of the self-employed, in comparison with those of employees, because of that parents with children may be more willing to be entrepreneurs in order to better combine their time devoted to work, leisure, and childcare (e.g., Gimenez-Nadal et al. 2011). Regarding the income variables, we find that there is almost no difference in the contribution to TEA between low and middle income individuals (Column 2), but those with high incomes tend more to be entrepreneurs, which agrees with our hypothesis on the positive

effect of a good financial situation on entrepreneurship. Furthermore, if we follow the results of Krishnaji (1995), which suggests that there is a positive relationship between family size and wealth, we can link this hypothesis with our previous finding about family variables and entrepreneurship. Finally, regarding the labor variables, and taking the retired and unemployed as reference, we find that the employed tend to contribute more to TEA, and students and homemakers tend to contribute less. None of these results vary from Column 1 to Column 2, i.e., they do not depend on the presence of well-being variables in the estimation. In particular, if we now focus on these (Column 2), we can see the different sign of the coefficients, which gives support to the not-clear overall effect of satisfaction on entrepreneurial activity. An ideal life, and having independence at work are positively related to contribution to TEA. This can be interpreted as individuals whose current lives are (almost) ideal and whose work gives them some degree of independence, are in a good psychological state, and consider that their current job allows them time enough to think about founding a new business. On the other hand, good conditions of life, being satisfied with current life, and being satisfied with current income discourages entrepreneurship and provides no incentive to change. Thus, our results maintain our hypothesis of a mixed relationship between well-being and satisfaction, in terms of entrepreneurial activity.

(Table 3 about here)

Column 3 of Table 3 is restricted to personal and innovation variables. We also include the variables "know someone who is an entrepreneur", "consider to have skills to be an entrepreneur" and "opportunities to become an entrepreneur". We find that the gender and age parameters estimated signs and significance do not vary from the two previous columns. However, the education variables lose their significance. This could be due to the inclusion of the self-skills variable. If we introduce in the model a variable that measures the individual skills of an entrepreneur, it may be collecting the effect of education and thus the latter loses weight. In fact, the former variable follows a meaningful positive relationship with the contribution to TEA, which is robust with the effect of education in the previous estimates. To know someone who has recently had entrepreneurial experience also encourages entrepreneurship, which gives empirical support to the existence of a transmission component in entrepreneurial activity. The same is observed for the opportunities variable, as expected. Regarding the innovation variables, their estimates are again what is expected: both product and technology innovation are strongly positive and meaningfully related to entrepreneurship. Then, we find evidence on the importance of innovation as a way to become an entrepreneur

and provide support to our assumption of individuals who are entrepreneurs not only through necessity, but also because they have opportunities and new ideas or new products and/or services to offer. We again repeat the estimates in Column 4, which includes the well-being module. Estimates of the previous parameters do not meaningfully vary from their values in Column 3. Furthermore, we find that the satisfaction estimates vary slightly from those in Column 2, while having an ideal life and satisfaction with job change their roles. The rest of the well-being variables do not change their sign and the interpretation dos not significantly vary, maintaining a generally mixed relationship to TEA participation.

In brief, we find that innovation, transmission, opportunities, and self-consideration of own skills are strong and positively related to entrepreneurship, although satisfaction and well-being have mixed effects, as expected. Furthermore, self-conception of skills may be collecting the effect of education variables on entrepreneurial activity. We also find that a good financial situation encourages entrepreneurial activity, primarily among employed individuals, rather than retirees, the unemployed, students, and homemakers.

4.2. Accuracy of the variables

When we focus on the fit of the models, it is easy to check that when innovation, opportunities, transmission, and skills are included in the regressions, the pseudo R^2 statistics considerably increase. However, the statistical model hardly improves when we include the well-being module. To show the marginal effect of each group of variables over the proportion of variability explained, we begin with an estimate of (1) when $\beta_2, ..., \beta_6 = 0$ (i.e., we only take into account personal variables), and we then add the rest of the modules[5]. As shown in Table 4, Column 1, we have a pseudo R^2 of 0.07 under the previous restriction. Now, we add to this naïve basis model the family and labor modules (Column 2), the well-being module (Column 3), the opportunities-transmission-skills modules (Column 4) and the innovation module (Column 5). In the first case, our pseudo R^2 barely increases (to 0.11), so we obtain minimal model improvement. The same occurs when we introduce the well-being module to the naïve model (a new pseudo R^2 of 0.11). However, we find a greater

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[5] Although pseudo R^2 may be a naive way to measure fitness compared to other sophisticated statistical approaches, it is intuitive and easy to understand. In fact, we show McFadden's pseudo R^2, which measures the degree of total variability of the dependent variable explained by the model. It also measures the degree to which the model parameters improve upon the prediction of the null model (a model with an intercept and no regressors); the higher the pseudo R^2, the greater the improvement.

improvement (0.20, which doubles the previous pseudo R^2s) when we introduce the opportunities-transmission-skills modules. Finally, when we take into account the two variables "new product" and "new technologies", we obtain a pseudo R^2 of 0.36, which almost quadruples the initial value. This means that a model with only these two variables, alone with the personal module, substantially increases the proportion of variability explained, almost matching that raised by the complete model of Table 3, Column 4. Furthermore, when we include both innovation and opportunities-transmission-skills modules, we again obtain a considerably greater improvement (a pseudo R^2 of 0.41). Thus, we have empirically shown the importance of these two groups of variables, particularly innovation, which provides supporting evidence for the notion of entrepreneurial activity arising from innovation.

(Table 4 about here)

Despite the previous results, R^2 is a biased method of estimating the importance of variables in this kind of statistical modeling and, although to a lesser degree, the adjusted R^2 and other classic information criteria also cause problems. Furthermore, these statistics are based on strong hypotheses that are not usually satisfied. The objective of this paper is not to enter into detail here, but a discussion on this topic can be found in Giménez-Nadal et al. (2016). Following the methodology proposed in the above-mentioned work, we show a non-biased measure of the importance of the variables used in this analysis. This methodology is based on bootstrapping the estimation of the model, randomly selecting independent variables and randomly dividing our sample into training and test subsamples. By bootstrapping the selection of independent variables, we avoid the presence of biases due to possible interdependence. On the other hand, resampling allows us to obtain valid estimations and avoid the inherent bias that appears when we estimate a model and check its accuracy with the same group of observations (James et al. 2013).

We run the model with 7 randomly-chosen variables and a training set of 93,608 randomly-chosen individuals with replacement, retaining the rest of the individuals as test subsample, in each of 500 iterations. Figure 1, Panel A shows the results of the methodology for the OECD sample. We can see that the five most important variables, in the way that their inclusion supposes the greatest reduction of the prediction error, are "new product", "new technology", being self-employed, the country of residence, and being employed. In fact, the inclusion of the two innovation variables in the model supposes a decrease of its predicted

mean error from around 0.185 to less than 0.160. This shows the prediction power of these two variables and justifies their inclusion in a way that coincides with the results of Table 4, while avoidingbias. As for the country of residence, it is shown to be significant as we repeat the process by including each country dummy variable. Panel B of Figure 1 shows that results qualitatively do not vary. There is no country that meaningfully improves the model in comparison with others. Now "considered to have skills of an entrepreneur" and "have opportunities to become an entrepreneur" have a higher overall importance, but this is not as clear as in the case of the innovation variables. In conclusion, we find that entrepreneurial models should consider innovation as a key factor in determining whether an individual is or is not an entrepreneur.

(Figure 1 about here)

4.3 Cross-country results

We conclude that the innovation and opportunities-transmission-skills modules have an overall meaningful effect in explaining the contribution to the TEA index across the OECD countries, being especially important the former's one. However, we have merged all these countries in a single model (including country fixed-effects). We now show, in Table 5, the results of estimating (1) under the restrictions of Column 4, Table 3, for each OECD country we have information on. Because there are different socio-economic, macroeconomic, and structural differences across OECD countries, such as degree of development, tax treatment, government programs, government incentives, and inter-country market conditions, we expect to find differences across countries.

In all the cases, the innovation module presents a positive meaningful relationship with entrepreneurial participation. This gives robustness to our claim of the previous subsection about the overall importance of this module. Besides, in all cases, some of the opportunities-transmission-skills module variables are meaningful, and all three are significant in most of the cases. Knowing someone with entrepreneurial experience (transmission of entrepreneurship) is not meaningful only in Greece and Poland, while having entrepreneurial skills is always meaningfully related to the contribution to the TEA index. However, having opportunities to be an entrepreneur often fails to be significant, for example in the cases of the US, Greece, Belgium, Sweden, Norway, Poland, Chile, Canada, and the Czech Republic. This

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may be due to cultural differences across countries, with these nine, perhaps, being the countries without entrepreneurial tradition. Furthermore, and because of the current crisis, the lack of effect of transmission in Greece and Poland may be due to the economic situation of those countries; both have been strongly affected by the crisis and their current macro-economic situation may not be the best suited to initiate a business or be an entrepreneur and, thus, knowing someone who has recently had entrepreneurial experience could be counteracted by the pessimism generated in the crisis, which leads to an overall null effect on the entrepreneurial decisions of individuals.

(Table 5 about here)

Regarding the personal variables, we find that, according to our sample, there is a gender gap between the entrepreneurial activity of individuals only in Chile, Luxembourg and the Czech Republic. This result shows how differences across countries can lead to confusion, in comparison with the situation in Table 3. As we have said before, the literature usually finds a gender gap in entrepreneurial activity, as we have already found in our pooled results. However, this gap disappears when we compute OECD countries separately, according to our data sample. The relationship between age and the TEA index also leads to mixed results. In Sweden, Norway, Finland, Slovenia, Germany, Luxembourg, Mexico, Japan, South Korea, and Portugal there is no relationship. However, there is a positive relationship in the rest of the OECD countries. Although we do not have data about experience for all the countries in the sample, the relationship is usually negative (except for Belgium and France, where there is no relationship). The well-being variables effect is quite different across countries, although in general the non-significance of parameters is the dominant effect. The lack of variables for certain countries, the mixed effects found and the structural differences across countries, could all be related to this result.

5 Conclusions

In this paper we empirically analyze entrepreneurial activity in OECD countries, in a microeconomic setting, using the GEM 2014 Global Individual Level database. Microeconomic approaches to entrepreneurship are not common, although they do produce results regarding personal characteristics, labor attributes, and other individual variables

(rather than institutions, taxes, or Government programs) that cannot be easily measured in aggregated terms.

We place special emphasis on three groups of variables: well-being variables, innovation variables, and a third group consisting of opportunities, self-consideration of skills, and transmission of entrepreneurial activity through meeting. None of these have traditionally been included in entrepreneurial studies and, to the best of our knowledge, the relationship between entrepreneurship and well-being has not yet been studied. Making use of both traditional methods and novel and less-biased approaches, we find that the innovation module plays a major role in the determination of entrepreneurial activity, measured through its contribution to the TEA index. Thus, it appears that innovation should always be considered as a key to describing entrepreneurial activity. Both innovation through technology and through product are positive and significantly related to entrepreneurial activity. We also find an important positive effect of the self-consideration of skills (which collects the effect of the educational variables), the transmission of the entrepreneurial spirit through meeting, and the consideration of opportunities to become an entrepreneur, as expected. However, the well-being variables have a mixed, positive and negative, and less important effect, while remaining statistically significant.

Our analysis has the limitation of relying on cross-sectional data, which means we must deal with causality problems, since we find relationships between variables but we cannot set any causal-effect criteria. We must also consider unobserved heterogeneity, since there may be differences in the contribution to the TEA that are not measured through the independent variables used in this study.

Because of the robustness of the significance of innovation drawn from our results, entrepreneurial analyses should include, in some way, the innovation variables. Furthermore, our results strongly suggest a channel of entrepreneurship due to innovation, apart from the ones due to necessity or vocation.

References

Acs, Z. (1992). Small business economics: A global perspective. *Challenge* 35, 38-44.

Amorós, J.E., Etchebarne, S. & Felzensztein, C. (2012). International entrepreneurship in Latin America: Development Challenges. *ESIC Market Economics and Business Journal* 43, 497-512.

Arenius, P. & Minniti, M. (2005). Perceptual variables and nascent entrepreneurship. *Small Business Economics* 24, 233-247.

Barrado, B. & Molina, J.A. (2015). Factores macroeconómicos que estimulan el emprendimiento. Un análisis para los países desarrollados y no desarrollados. Documentos de Trabajo DT2016-06, Facultad de Ciencias Económicas y Empresariales, Universidad de Zaragoza.

Berrios-Lugo, J.E. & Espina, M.I. (2014). Determinant factos for the development of entrepreneurial activity: A correlational study. *ESIC Market* 147.

Blanchflower, D.G. (2000). Self-employment in OECD countries. *Labour Economics* 7, 471-505.

Blumberg, B. & Pfann, G. (2015). Roads leading to self-employment: comparing transgenerational entrepreneurs and self-made starts-ups. *IZA Discussion Paper No. 9155.*

Bosma, N., van Praag, M., Thurik, R. & de Wit, G. (2004). The value of human and social capital investments for the business performance of start-ups. *Small Business Economics* 23, 227-236.

Brixiová, Z., Ncube, M. & Bicaba, Z. (2015). Skills and youth entrepreneurship in Africa: Analysis with evidence from Swaziland. *World Development* 67, 11-26.

Campaña, J.C., Giménez-Nadal, J.I. & Molina, J.A. (2016). Differences between self-employees and wage-earners in time uses: Aragon vs. Spain. MPRA Paper No. 71463, University Library of Munich, Germany.

Cho, H.J. & Pucik, V. (2005). Relationship between innovativeness, quality, growth, profitability, and market value. *Strategic Management Journal* 26, 555-575.

Congregado, E., Golpe, A.A. & Carmona, M. (2010). Is it a good policy to promote self-employment for job-creation? Evidence from Spain. *Journal of Policy Modeling* 32, 828-842.

Cooper, A.C., Gimeno-Gascon, F. & Woo, C.Y. (1994). Initial human and financial capital as predictors of new venture performance. *Journal of Business Venturing* 9, 371-395.

Cooper, A.C. & Yin. X. (2005). Entrepreneurial networks. In Hitt, M.A. and R.D. Ireland (eds.), *The Blackwell Encyclopedia of Management –Entrepreneurship*. Malden, MA: Blackwell, pp. 98-100.

Cueto, B., Mayor, M. & Suarez, P. (2015). Entrepreneurship and unemployment in Spain: a regional analysis. *Applied Economic Letters* 22, 1-6.

Davidsson, P. (1989). Entrepreneurship – and after? A study of growth willingness in small firms. *Journal of Business Venturing* 4, 211-226.

Dawson, C., de Meza, D., Henley, A. & Arabsheibani, G.R. (2015). "The power of (non) positive thinking: self-employed pessimists earn more than optimists. *IZA Discussion Paper No. 9242.*

Estrin, S. & Mickiewicz, T. (2011). Institutions and female entrepreneurship. *Small Business Economics* 37, 397-415.

Fritsch, M., Kritikos, A.S. & Sorgner, A. (2015). Why did self-employment increase so strongly in Germany? *Entrepreneurship and Regional Development* 27, 307-333.

García, I. & Molina, J.A. (1998). Household labour supply withy rationing in Spain. *Applied Economics* 30, 1557-1570.

García, I. & Molina, J.A. (2002). Inter-regional wage differentials in Spain. *Applied Economics Letters* 9, 209-215.

García, I., Molina, J.A. & Montuenga, V. (2010). Intra-family distribution of paid-work time. *Applied Economics* 42, 589-601.

Gilbert, B.A., McDougall, P.P. & Audretsch, D.B. (2006). New venture growth: A review and extension. *Journal of Management* 32, 926-950.

Gimenez-Nadal, J.I. & Molina, J.A. (2014). Regional unemployment, gender and time allocation of the unemployed. *Review of Economics of the Household* 12(1), 105-127.

Gimenez-Nadal, J.I. & Molina, J.A. (2016). Health inequality and the uses of time for workers in Europe: policy implications. *IZA Journal of European Labor Studies* 5(2).

Gimenez-Nadal, J.I., Molina, J.A. & Ortega, R. (2012). Self-employed mothers and the work-family conflict. *Applied Economics* 44, 2133-2148.

Giménez-Nadal, J.I., Lafuente, M., Molina, J.A. & Velilla, J. (2016). Resampling and bootstrap to assess the relevance of variables: a new algorithmic approach with applications to entrepreneurship data. *IZA Discussion Paper No 9938.*

González, C. & Montero, J. (2014). Entrepreneurial dynamic and economic growth. Political implications from the GEM project. *Mimeo.*

Hoang, H. & Antoncic, B. (2003). Network-based research in entrepreneurship. *Journal of Business Venturing* 18, 165-187.

Holcomb, T.R., Ireland, R.D., Holmes, R.M. & Hitt, M.A. (2009). Architecture of entrepreneurial learning: exploring the link among heuristics, knowledge, and action. *Entrepreneurship Theory and Practice* 33, 167-192.

James, G., Witten, D, Hastie, T. & Tibshirani, R. (2013). *An Introduction to Statistical Learning* (vol. 112). New York: Springer.

Kelley, D. (2009). Growth aspirations as a function of entrepreneurial motivations and perceptions. *Babson Faculty Research Working Papers No. 49.*

Kleinschmidt, E.J. & Cooper, R.G. (1991). The impact of product innovativeness on performance. *Journal of Product Innovation Management* 8, 240-251.

Krishnaji, N. (1995). Family size and wealth-standing Chayanov on his head in the Indian context. *The Journal of Peasant Studies* 22, 261-278.

Kyrö, P. (2015). The conceptual contribution of education to research on entrepreneurship education. *Entrepreneurship and Regional Development*, 1-20.

Levie, J. & Autio, E. (2013). Growth and growth intentions: A meta-analysis of existing evidence. *Enterprise Research Centre, ERC White Papers No. 1.*

Lundstrom, A. & Stevenson, L. (2002). On the road to entrepreneurship policy," Vol. 1 in the Entrepreneurship Policy for the Future series. *Stockholm: Swedish Foundation for Small Business Research.*

Minniti, M. (2005). Entrepreneurship and network externalities. *Journal of Economic Behaviour & Organization* 57, 1-27.

Minniti, M. (2009). Gender issues in entrepreneurship. *Foundations and Trends in Entrepreneurship* 5, 497-621.

Minniti, M. & Nardone, C. (2007). Being in someone else's shoes: Gender and nascent entrepreneurship. *Small Business Economics* 28, 223-239.

Molina, J.A. & Montuenga, V. (2009). The motherhood wage penalty in Spain. *Journal of Family and Economic Issues* 30, 237-251.

Molina, J.A., Velilla, J. & Ortega, R. (2015). The decisión to become an entrepreneur in Spain: the role of the household financial situation. *MPRA Paper No 68101.*

Mussurov, A. & Arabsheibani, G.R. (2005). Informed self-employment in Kazakhstan. *IZA Journal of Labor & Development* 4:9.

Olivetti, C. & Petrongolo, B. (2014). Gender gaps across countries and skills: Demand, supply and the industry structure. *Review of Economic Dynamics* 17, 842-859.

Porter, M. (1990). *The Competitive Advantage of Nations*. New York: Free Press.

Ramos-Rodriguez, A., Medina-Garrido, J., Lorenzo-Gomez, J. & Ruiz-Navarro, J. (2010). What you know or who you know? The role of intellectual and social capital in opportunity recognition. *International Small Business Journal* 28, 566-582.

Schott, T. & Bager, T. (2004). "Growth expectations by entrepreneurs in nascent firms, baby business and mature firms. In T. Bager and M. Hancock (eds.), *The growth of Danish firms* (*Part 2 of the Global Entrepreneurship Monitor*). Copenhagen, DK: Borsens Forlag, pp. 219-230.

Schumpeter, A. (1934). *The Theory of Economic Development*. Cambridge, MA: Harvard University Press.

Tale 1. Summary statistics of male individuals

Variables	Employed		Retired and unemployed		Students		Homemakers		
	Mean	E.Dev.	Mean	E.Dev.	Mean	E.Dev.	Mean	E.Dev.	p-values
Contribution to TEA	0.124	0.330	0.044	0.206	0.030	0.171	0.082	0.276	(<0.01)
Age	41.746	12.134	50.629	17.023	22.065	4.841	48.947	16.038	(<0.01)
Basic education	0.030	0.172	0.093	0.290	0.011	0.108	0.127	0.335	(<0.01)
Secondary education	0.611	0.487	0.648	0.477	0.785	0.410	0.601	0.491	(<0.01)
University education	0.326	0.469	0.218	0.413	0.173	0.378	0.240	0.429	(<0.01)
Experience	3.630	8.114	0.247	2.494	0.010	0.326	0.218	1.855	(<0.01)
Family size	3.267	1.619	2.872	1.634	3.763	1.351	3.421	1.915	(<0.01)
Number of children	0.867	1.351	0.652	1.244	0.884	1.566	1.075	1.306	(<0.01)
Low income	0.181	0.385	0.387	0.487	0.209	0.407	0.398	0.491	(<0.01)
Middle income	0.472	0.499	0.469	0.499	0.640	0.480	0.375	0.486	(<0.01)
High income	0.345	0.475	0.142	0.349	0.150	0.357	0.225	0.419	(<0.01)
Know someone who has entrepreneurial exp.	0.376	0.484	0.245	0.430	0.288	0.453	0.285	0.453	(<0.01)
Consider to have skills of an entrepreneur	0.555	0.497	0.447	0.497	0.289	0.453	0.488	0.501	(<0.01)
Opportunities to be an entrepreneur	0.313	0.464	0.231	0.421	0.277	0.447	0.345	0.477	(<0.01)
New product	0.099	0.298	0.026	0.161	0.017	0.130	0.07	0.264	(<0.01)
New technology	0.056	0.231	0.017	0.130	0.012	0.109	0.060	0.238	(<0.01)

Ideal life	0.518	0.499	0.401	0.490	0.529	0.499	0.473	0.501	(<0.01)
Good conditions of life	0.523	0.499	0.406	0.491	0.578	0.493	0.496	0.501	(<0.01)
Satisfied with life	0.698	0.458	0.587	0.492	0.746	0.435	0.646	0.479	(<0.01)
Have obtained important things in life	0.600	0.489	0.524	0.499	0.532	0.499	0.616	0.488	(<0.01)
Satisfied with job	0.589	0.491	0.001	0.033	0	0	0	0	(<0.01)
Satisfied with job income	0.373	0.483	0.000	0.023	0	0	0	0	(<0.01)
Number of observations	32,183		10,483		3,038		133		

Note: The sample (GEM 2014 Global Individual level) is restricted to OECD male individuals. Experience is measured in years. Kruskal-Wallis p-values of the differences in parentheses.

Tale 2. Summary statistics of female individuals

Variables	Employed		Retired and unemployed		Students		Homemakers		
	Mean	E.Dev.	Mean	E.Dev.	Mean	E.Dev.	Mean	E.Dev.	p-values
Contribution to TEA	0.091	0.287	0.020	0.167	0.021	0.145	0.021	0.146	(<0.01)
Age	41.938	11.772	51.902	17.236	22.337	5.242	46.402	12.080	(<0.01)
Basic education	0.027	0.163	0.088	0.283	0.008	0.092	0.146	0.353	(<0.01)
Secondary education	0.576	0.494	0.647	0.477	0.757	0.428	0.687	0.463	(<0.01)
University education	0.366	0.481	0.225	0.418	0.194	0.396	0.143	0.350	(<0.01)
Experience	4.419	8.586	0.138	2.094	0.004	0.139	0.030	0.810	(<0.01)
Family size	3.254	1.471	2.824	1.671	3.816	1.410	3.760	1.565	(<0.01)
Number of children	0.962	1.347	0.683	1.243	0.964	1.628	0.410	0.990	(<0.01)
Low income	0.222	0.416	0.421	0.493	0.225	0.417	0.297	0.457	(<0.01)
Middle income	0.501	0.500	0.473	0.499	0.654	0.475	0.553	0.497	(<0.01)
High income	0.275	0.446	0.104	0.306	0.119	0.324	0.148	0.355	(<0.01)
Know someone who has entrepreneurial exp.	0.322	0.467	0.219	0.413	0.273	0.445	0.225	0.417	(<0.01)
Consider to have skills of an entrepreneur	0.414	0.492	0.346	0.475	0.242	0.428	0.277	0.447	(<0.01)
Opportunities to be an entrepreneur	0.266	0.442	0.215	0.411	0.233	0.423	0.206	0.404	(<0.01)
New product	0.071	0.258	0.009	0.095	0.011	0.106	0.011	0.104	(<0.01)
New technology	0.036	0.188	0.406	0.491	0.006	0.078	0.005	0.075	(<0.01)

Ideal life	0.534	0.498	0.406	0.491	0.561	0.496	0.492	0.499	(<0.01)
Good conditions of life	0.525	0.499	0.405	0.491	0.567	0.495	0.500	0.500	(<0.01)
Satisfied with life	0.706	0.455	0.594	0.491	0.761	0.426	0.675	0.468	(<0.01)
Have obtained important things in life	0.648	0.477	0.576	0.494	0.614	0.486	0.619	0.485	(<0.01)
Satisfied with job	0.597	0.490	0.000	0.025	0	0	0	0	(<0.01)
Satisfied with job income	0.351	0.477	0.000	0.025	0	0	0	0	(<0.01)
Number of observations	27,571		11,052		3,038		6,137		

Note: The sample (GEM 2014 Global Individual level) is restricted to OCDE female individuals. Experience is measured in years. Kruskal-Wallis *p*-values of the differences in parentheses.

Table 3. OECD pooled logit estimates

Variables	(1) Socio-demographic	(2) Plus well-being	(3) Innovation	(4) Plus well-being
Male	0.416***	0.402***	0.180***	0.141***
	(0.030)	(0.030)	(0.038)	(0.038)
Age	-0.014***	-0.015***	-0.020***	-0.021***
	(0.001)	(0.001)	(0.001)	(0.001)
Secondary ed.	0.206***	0.194**	0.132	0.107
	(0.076)	(0.076)	(0.094)	(0.096)
University ed.	0.422***	0.400***	0.142	0.105
	(0.080)	(0.080)	(0.097)	(0.099)
Experience	-0.102***	-0.101***	-0.038***	-0.043***
	(0.006)	(0.006)	(0.004)	(0.005)
Family size	0.017*	0.018*		
	(0.010)	(0.010)		
N of children	0.047***	0.033*		
	(0.017)	(0.018)		
Middle income	0.049	0.072*		
	(0.040)	(0.041)		
High income	0.201***	0.238***		
	(0.045)	(0.046)		
Employed	1.146***	0.747***		
	(0.051)	(0.058)		
Student	-0.697***	-0.686***		
	(0.112)	(0.112)		
Homemaker	-0.371***	-0.354***		
	(0.108)	(0.108)		
Life is close to the ideal		0.103***		-0.010
		(0.039)		(0.047)
Good conditions of life		-0.082**		-0.107**
		(0.039)		(0.048)
Satisfied with life		-0.138***		-0.173***
		(0.042)		(0.051)
Obtained important things in life		-0.025		-0.041
		(0.036)		(0.044)
Independence at work		0.795***		0.603***
		(0.042)		(0.053)
Satisfied with job		0.010		0.153***
		(0.043)		(0.055)
Satisfied with job income		-0.223***		-0.232***
		(0.039)		(0.053)
Knows someone who has entrep. exp.			0.957***	0.927***
			(0.038)	(0.039)
Consider to have skills of an entrepr.			1.296***	1.241***
			(0.041)	(0.042)
Opportunities to be an entrepreneur			0.385***	0.407***
			(0.041)	(0.041)
New product			2.936***	2.870***
			(0.050)	(0.051)
New technology			2.361***	2.298***

|			(0.083)	(0.082)
Constant	-3.335***	-3.284***	-3.896***	-3.949***
	(0.137)	(0.139)	(0.154)	(0.158)
Wald's Chi2 *p*-value	0.000	0.000	0.000	0.000
Pseudo R2	0.1105	0.1216	0.4144	0.4208
Observations	93,608	93,608	93,608	93,608

Note: Robust standard errors in parentheses. Country fix-effects. The sample (GEM 2014 Global Individual level) is restricted to OCDE individuals. The dependent variable is "contribution to TEA". Experience is measured in years. Reference category for education level is primary/basic education. Reference category for income is low income. * Significant at the 90% level. ** Significant at the 95% level. *** Significant at the 99% level.

Table 4. Naïve model and addition of modules

Variables	(1) Personal	(2) Plus familiar	(3) Plus well-being	(4) Plus opport, skills and transm.	(5) Plus innovation	(6) (4)+(5)
Personal	Yes	Yes	Yes	Yes	Yes	Yes
Family and labor	No	Yes	No	No	No	No
Well-being	No	No	Yes	No	No	No
Others	No	No	No	Yes	No	Yes
Innovation	No	No	No	No	Yes	Yes
Country F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.0723	0.1105	0.1094	0.2034	0.3592	0.4144
Observations	93,608	93,608	93,608	93,608	93,608	93,608

Note: Robust standard errors in parentheses. Country fixed-effects. The sample (GEM 2014 Global Individual level) is restricted to OECD individuals. The dependent variable is "contribution to TEA". Personal module includes gender, age, education and experience; family and labor module includes family size, number of children, income level and labor status; well-being module includes ideal life, good conditions of life, life satisfaction, obtained important things, independence at work, job satisfaction and income satisfaction; others includes know someone who has entrepreneur, have skills to entrepreneur and have opportunities; innovation module includes new product and new technology. Experience is measured in years. Reference category for education level is primary/basic education. Reference category for income is low income. * Significant at the 90% level. ** Significant at the 95% level. *** Significant at the 99% level.

Figure 1. Mean prediction error associated to variables
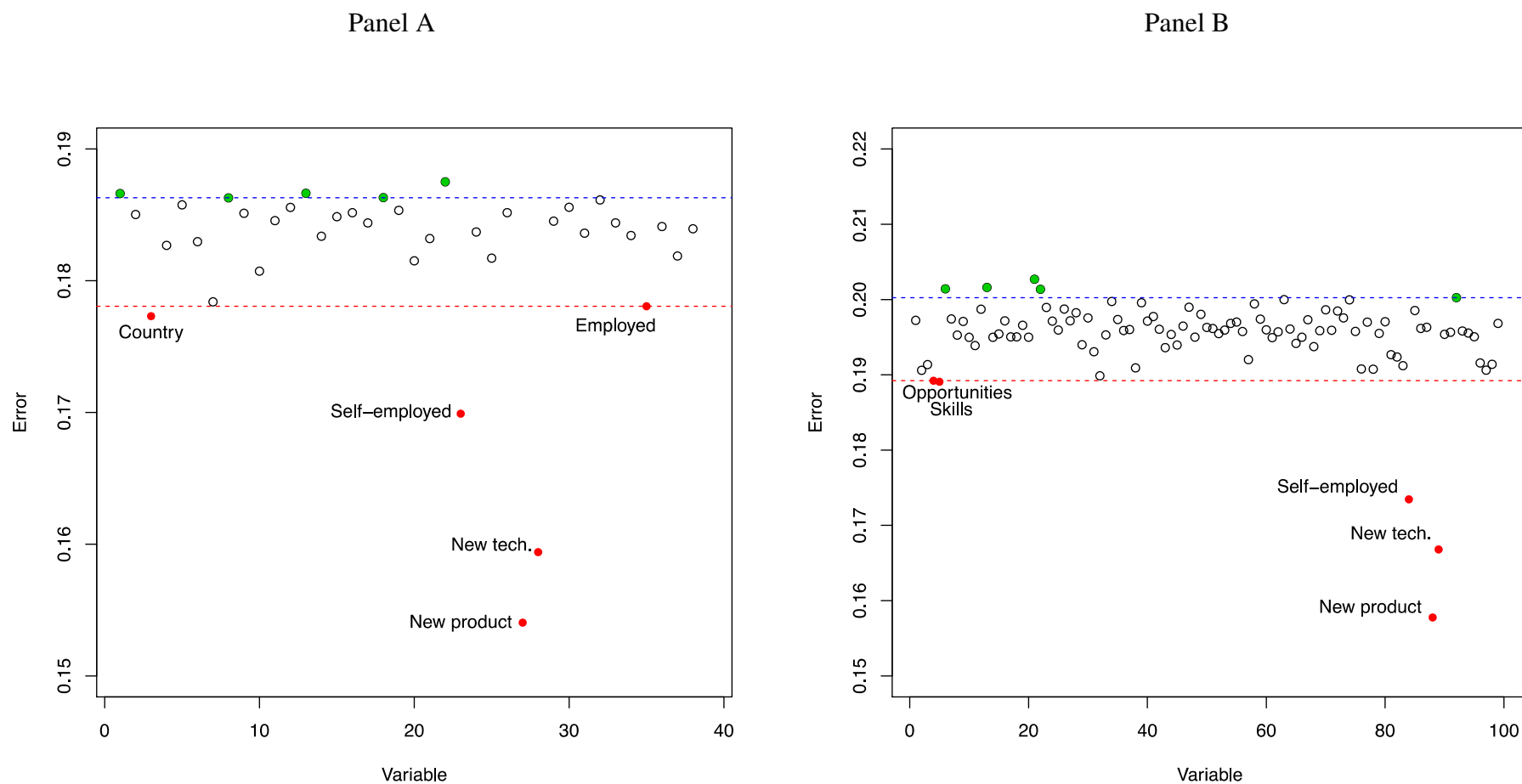
Panel A

Panel B

Note: Figures obtained following Giménez-Nadal et al. (2016)'s method. Panel A includes a pooled country variable while Panel B includes country dummy variables. The sample (GEM 2014 Global Individual level) is restricted to OECD individuals. The dependent variable is "contribution to TEA". Variables include are the ones in Tables 1 and 2, plus others that might be related to contribution to TEA: fear to failure ("fearfail" code in GEM), desire to equity ("equalinc"), good consideration of entrepreneurship ("nbgoodc"), good status of success businessmen ("nbstatus") and media support for entrepreneurs ("nbmedia"). Red line delimits the five variables that reduce the prediction error the most.

Table 5. OECD cross-country logit estimates

Variables	(1) US	(2) Greece	(3) Netherlands	(4) Belgium	(5) France	(6) Spain	(7) Hungary	(8) Switzerland	(9) Sweden	(10) Norway	(11) Poland	(12) Germany	(13) Mexico
Male	0.197	0.155	-0.063	-0.212	-0.137	0.105	-0.024	-0.336	0.137	0.370	-0.221	0.198	0.161
	(0.150)	(0.304)	(0.191)	(0.306)	(0.330)	(0.087)	(0.205)	(0.230)	(0.217)	(0.240)	(0.310)	(0.212)	(0.123)
Age	-0.018***	-0.023*	-0.021***	-0.032***	-0.041***	-0.025***	-0.015*	-0.031***	-0.003	-0.013	-0.051***	-0.002	-0.004
	(0.004)	(0.012)	(0.007)	(0.012)	(0.010)	(0.004)	(0.008)	(0.007)	(0.006)	(0.009)	(0.015)	(0.008)	(0.005)
Secondary ed.	0.161	0.777	0.528	-0.329	-0.244	0.045	0.288	12.742***	0.295	-0.870	0.533	-0.148	0.365*
	(0.281)	(0.574)	(0.639)	(1.094)	(0.532)	(0.195)	(0.409)	(0.534)	(0.895)	(0.949)	(0.783)	(0.457)	(0.195)
University ed.	0.009	0.798	0.563	-0.560	0.307	-0.039	0.508	13.367***	0.389		-0.017	-0.264	0.099
	(0.298)	(0.587)	(0.647)	(1.074)	(0.555)	(0.201)	(0.442)	(0.556)	(0.893)		(0.785)	(0.475)	(0.293)
Experience			-0.085***	0.006	-0.003	-0.052**	-0.031**		-0.030*		-0.073**	-0.046***	
			(0.028)	(0.016)	(0.026)	(0.021)	(0.015)		(0.015)		(0.031)	(0.013)	
Life is close to the ideal	-0.215	0.359	0.491**	-0.532	-0.733*	0.078	0.055	-0.641**	-0.399*	0.226	0.639**	-0.176	0.048
	(0.170)	(0.410)	(0.217)	(0.344)	(0.381)	(0.105)	(0.220)	(0.285)	(0.237)	(0.304)	(0.316)	(0.295)	(0.169)
Good conditions of life	0.221	0.354	-0.315	-0.439	0.293	-0.186*	-0.139	0.008	0.082	-0.504	-0.463	-0.194	-0.413**
	(0.182)	(0.433)	(0.236)	(0.365)	(0.399)	(0.106)	(0.257)	(0.314)	(0.263)	(0.370)	(0.333)	(0.249)	(0.169)
Satisfied with life	-0.346*	-0.053	-0.256	0.768*	0.790*	-0.349***	-0.233	0.788*	-0.039	-0.054	-0.063	0.045	0.182
	(0.184)	(0.317)	(0.299)	(0.454)	(0.425)	(0.108)	(0.235)	(0.463)	(0.295)	(0.451)	(0.427)	(0.283)	(0.180)
Obtained important things in life	-0.168	-0.043	-0.070	0.105	-0.051	0.038	-0.366*	0.136	-0.166	0.050	-0.094	-0.121	0.068
	(0.170)	(0.315)	(0.199)	(0.364)	(0.370)	(0.099)	(0.201)	(0.279)	(0.233)	(0.277)	(0.379)	(0.219)	(0.166)
Independence at work		1.991***	0.820***	0.622	1.157***	0.732***	0.718***		0.372		0.810**	0.452	0.591**
		(0.338)	(0.259)	(0.396)	(0.370)	(0.110)	(0.227)		(0.295)		(0.335)	(0.336)	(0.267)
Satisfied with job		-0.153	0.271	0.054	-0.474	0.222*	0.238		0.141		-0.186	0.263	-0.258
		(0.364)	(0.239)	(0.375)	(0.391)	(0.116)	(0.232)		(0.306)		(0.377)	(0.354)	(0.287)
Satisfied with job income		-0.380	-0.449**	-1.046***	-0.407	-0.370***	-0.015		0.047		0.313	-0.663**	-0.073
		(0.385)	(0.210)	(0.371)	(0.425)	(0.121)	(0.247)		(0.262)		(0.436)	(0.272)	(0.289)
Knows someone who has Entrepreneurial exp.	1.190***	0.136	0.871***	1.262***	0.861**	1.107***	0.985***	0.910***	1.041***	1.006***	0.462	1.235***	0.240*
	(0.149)	(0.294)	(0.208)	(0.309)	(0.363)	(0.087)	(0.199)	(0.230)	(0.215)	(0.234)	(0.288)	(0.222)	(0.127)
Consider to have skills of an entrepreneur	1.112***	0.665**	1.555***	2.052***	1.582***	1.629***	1.470***	1.459***	1.464***	1.737***	1.612***	1.366***	0.666***
	(0.169)	(0.327)	(0.232)	(0.390)	(0.375)	(0.111)	(0.226)	(0.298)	(0.235)	(0.261)	(0.313)	(0.215)	(0.134)
Opportunities to be an entrepreneur	0.180	-0.350	0.500***	0.145	0.816**	0.493***	0.477**	0.396*	0.148	0.149	-0.192	0.568***	0.620***
	(0.153)	(0.417)	(0.192)	(0.327)	(0.340)	(0.104)	(0.229)	(0.228)	(0.210)	(0.238)	(0.292)	(0.213)	(0.128)
New product	2.873***	2.215***	2.544***	2.273***	2.682***	2.836***	2.036***	2.460***	2.273***	2.570***	3.132***	2.981***	2.322***
	(0.214)	(0.353)	(0.273)	(0.460)	(0.553)	(0.152)	(0.329)	(0.306)	(0.309)	(0.431)	(0.329)	(0.275)	(0.189)
New Technologies	2.396***	2.094***	2.635***	2.454***	2.826***	2.335***	2.820***	2.388***	2.516***	2.945***	2.444***	2.958***	1.137***
	(0.460)	(0.325)	(0.449)	(0.520)	(0.668)	(0.156)	(0.604)	(0.674)	(0.527)	(0.521)	(0.861)	(0.611)	(0.419)
Constant	-3.099***	-5.178***	-4.341***	-3.577***	-3.985***	-4.320***	-3.603***	-16.302***	-4.618***	-3.259***	-3.170***	-4.578***	-3.305***
	(0.339)	(0.775)	(0.768)	(1.383)	(0.809)	(0.266)	(0.522)	(0.792)	(1.025)	(1.082)	(0.993)	(0.580)	(0.288)
Observations	5,676	2,000	3,005	2,001	2,002	24,600	2,000	2,003	2,471	2,000	2,000	5,996	2,801

Variables	(14) Chile	(15) Japan	(16) South Korea	(17) Canada	(18) Portugal	(19) Luxem	(20) Ireland	(21) Finland	(22) Estonia	(23) Slovenia	(24) Czech Rep.	(25) Slovaquia	(26) Israel
Male	0.231*	-0.079	0.256	-0.074	-0.248	0.497*	-0.109	-0.040	0.322	0.125	0.651***	0.124	0.223
	(0.124)	(0.384)	(0.239)	(0.185)	(0.250)	(0.275)	(0.234)	(0.266)	(0.209)	(0.259)	(0.157)	(0.220)	(0.214)
Age	-0.030***	-0.016	-0.002	-0.026***	-0.014	-0.013	-0.030***	-0.011	-0.036***	-0.015	-0.031***	-0.016**	-0.018*
	(0.004)	(0.012)	(0.009)	(0.006)	(0.010)	(0.011)	(0.010)	(0.011)	(0.008)	(0.011)	(0.006)	(0.008)	(0.010)
Secondary ed.	0.175	-1.303**	1.771*		-0.138	0.007	-0.022	-0.489	0.045	0.523	-0.618	12.567***	0.770
	(0.638)	(1.033)	(0.502)		(0.659)	(0.573)	(0.794)	(0.800)	(0.956)	(0.663)	(0.273)	(2.383)	(2.383)
University ed.	-1.720**	1.809*	-0.362		0.623	-0.062	-0.748	0.256	0.209	-0.364	12.795***	0.943	0.943
	(0.683)	(1.042)	(0.509)		(0.648)	(0.593)	(0.840)	(0.804)	(0.977)	(0.675)	(0.313)	(2.385)	(2.385)
Experience				-0.061***	-0.028*	-0.041*	-0.103**	-0.023	-0.070***	-0.091**	-0.068***		
				(0.020)	(0.016)	(0.022)	(0.041)	(0.023)	(0.025)	(0.036)	(0.023)		
Life is close to the ideal	-0.021	0.861***	-0.567**	0.033	0.023	-0.036	-0.716*	0.007	0.154	-0.440	-0.098	0.224	0.224
	(0.387)	(0.283)	(0.242)	(0.278)	(0.341)	(0.327)	(0.403)	(0.239)	(0.340)	(0.294)	(0.256)	(0.247)	(0.247)
Good conditions of life	-0.277	-0.108	0.031	-0.196	0.107	-0.375	0.369	0.177	0.077	-0.326	-0.275	-0.168	-0.168
	(0.403)	(0.292)	(0.240)	(0.279)	(0.358)	(0.309)	(0.437)	(0.240)	(0.326)	(0.303)	(0.278)	(0.224)	(0.224)
Satisfied with life	-0.582	-0.445	-0.288	0.010	-0.831**	-0.431	-0.140	0.101	-0.487	0.029	-0.091	0.468*	0.468*
	(0.392)	(0.291)	(0.238)	(0.289)	(0.383)	(0.334)	(0.466)	(0.267)	(0.349)	(0.275)	(0.239)	(0.267)	(0.267)
Obtained important things in life	-0.331	-0.515*	-0.068	0.101	0.284	0.418	-0.211	-0.191	-0.191	-0.009	-0.133	-0.261	-0.261
	(0.348)	(0.271)	(0.217)	(0.305)	(0.318)	(0.306)	(0.296)	(0.211)	(0.289)	(0.241)	(0.234)	(0.233)	(0.233)
Independence at work	1.113***	0.494*	0.501**	-0.289	0.341	0.662*	0.505	0.509**	0.365	1.150***	0.456*	0.402	0.402
	(0.419)	(0.265)	(0.225)	(0.292)	(0.323)	(0.348)	(0.318)	(0.233)	(0.388)	(0.272)	(0.260)	(0.247)	(0.247)
Satisfied with job	0.417	0.036	0.319	0.935***	0.171	0.406	-0.031	0.061	0.525	-0.091	0.087	0.027	0.027
	(0.449)	(0.272)	(0.229)	(0.323)	(0.328)	(0.388)	(0.334)	(0.256)	(0.388)	(0.284)	(0.274)	(0.257)	(0.257)
Satisfied with job income	-0.311	0.015	-0.374*	0.195	-0.072	-0.425	0.544*	-0.095	0.138	-0.107	0.024	-0.411	-0.411
	(0.393)	(0.354)	(0.219)	(0.309)	(0.325)	(0.307)	(0.315)	(0.241)	(0.325)	(0.285)	(0.307)	(0.271)	(0.271)
Knows someone who has Entrepreneurial exp.	0.756**	0.543**	1.192***	0.784***	0.584**	1.297***	0.468*	0.979***	0.827***	1.049***	0.671***	1.123***	1.123***
	(0.379)	(0.239)	(0.189)	(0.237)	(0.259)	(0.256)	(0.283)	(0.210)	(0.268)	(0.157)	(0.216)	(0.231)	(0.231)
Consider to have skills of an entrepreneur	1.750***	1.030***	1.266***	1.181***	1.027***	1.008***	1.606***	1.472***	1.397***	0.871***	1.127***	1.021***	1.021***
	(0.371)	(0.246)	(0.209)	(0.289)	(0.270)	(0.245)	(0.275)	(0.219)	(0.330)	(0.169)	(0.242)	(0.217)	(0.217)
Opportunities to be an entrepreneur	0.568	0.829***	0.723***	0.264	0.684**	0.864***	0.623**	0.627***	0.623**	0.395**	0.158	0.413*	0.413*
	(0.513)	(0.255)	(0.193)	(0.258)	(0.268)	(0.248)	(0.266)	(0.218)	(0.302)	(0.158)	(0.269)	(0.213)	(0.213)
New product	3.282***	2.579***	2.690***	2.455***	3.175***	2.897***	2.326***	3.142***	2.866***	3.312***	3.247***	3.268***	3.268***
	(0.428)	(0.267)	(0.243)	(0.350)	(0.357)	(0.346)	(0.335)	(0.308)	(0.358)	(0.213)	(0.295)	(0.274)	(0.274)
New Technologies	2.893***	2.110***	3.090***	3.201***	3.343***	2.705***	1.574***	2.987***	2.942***	1.702***	2.672***	2.027***	2.027***
	(0.748)	(0.460)	(0.435)	(0.407)	(0.560)	(0.494)	(0.490)	(0.430)	(0.642)	(0.268)	(0.396)	(0.438)	(0.438)
Constant	-3.166***	-6.065***	-2.916***	-3.883***	-4.332***	-3.394***	-3.573***	-3.516***	-4.581***	-2.997***	-16.104***	-5.054**	-5.054**
	(0.846)	(1.133)	(0.611)	(0.478)	(0.828)	(0.737)	(1.042)	(0.931)	(1.149)	(0.695)	(0.439)	(2.415)	(2.415)
Observations	2,000	2,000	3,274	2,003	2,005	2,002	2,005	2,004	2,002	5,009	2,007	2,039	2,039

Note: Robust standard errors in parentheses. Country fixed-effects. The sample (GEM 2014 Global Individual level) is restricted to OECD individuals. The dependent variable is "contribution to TEA". Experience is measured in years. Reference category for education level is primary/basic education. Reference category for income level is low income. * Significant at the 90% level. ** Significant at the 95% level. *** Significant at the 99% level.