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Abstract Traditional economic growth literature focuses mainly on the neoclassical approach. According to this view, firms try to maximize their benefits so that there is no place for non-profit organizations (NPOs). However, the activity of NPOs has a higher relevance in society, and it is necessary to analyze its effects on economic growth. These effects are not direct, but occur through other variables that directly promote economic growth, such as entrepreneurship activity and human capital, and through the improvement of education. We engage in an empirical analysis of these issues using data from 11 countries.

Keywords Non-profit organizations ·
Entrepreneurship · Social capital ·
Economic growth · Schumpeter

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1 Introduction

Traditional economic literature focuses mainly on the role of for-profit firms and their effects on economic activity. The economic agents trying to improve their position are families maximizing their utility through the goods and services that they demand, and firms maximizing their profit by supplying such goods and services. Thanks to the market, a balance is obtained and both are satisfied. In such a model, there is no possibility that other agents, for example the state, could function as such, and interference on their part would have negative effects or would not improve the situation.

The same case would apply for non-profit organizations (NPOs). If the firm's behavior enhances economic growth and therefore there is higher employment and more goods and services produced and consumed, there would be higher welfare in society. So, what is the role of NPOs? More importantly, are they necessary?

The neoclassical answer is, of course, that they are not necessary. Market forces are sufficient to achieve greater welfare. However, in societies there are equality and unemployment problems that have not been solved. On the other hand, networking is vital to many to establish and maintain contacts. This can be done through numerous channels, not only through firms, but also clubs and associations are created for the purposes of bringing people together in order to spend time speaking, playing or solving problems in

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an altruistic way. The social capital approach states that these kinds of meetings have a positive effect on economic activity.

For this reason, it is necessary to consider the role of other kinds of organizations in the analysis and to determine whether they can also enhance the process of economic growth. This is the main objective of this article. In the following section, we will consider some characteristics of NPOs. In Sect. 3, we will analyze the Schumpeterian growth model by including NPOs. In Sect. 4, we will consider the relationship between entrepreneurship, NPOs and social capital. In Sect. 5, the empirical analysis will be developed followed by the main conclusions.

2 Characteristics of NPOs

Adam Smith, in his celebrated book *The Wealth of Nations*, (Smith 1776, Book I, Chap. i), considers division of labor as both a cause and an effect of economic growth. The capital accumulation process increases population and employment, and manufactured goods are increased. The extent of the market drives the division of labor and the effects derived from this division enhance economic growth. Higher economic growth will extend the market, facilitating a new division of labor.

In this sense, Groenewegen (1991, p. 901, quoted in Valentinov 2006) considers two types of division of labor: manufacturing and social. The former takes place within specific industries and factories, and has been traditionally considered in the literature. The latter refers to the separation of employment and professions within society. Recent literature has shown interest in analyzing this evolution and the consequences of such division.

In our case, we will consider the social division of labor that would include NPOs. Several definitions of NPOs have appeared in the literature. Following Dobkin Hall (1987, p. 3), NPOs are "a body of individuals who associate for any three purposes: (1) to perform public tasks that have been delegated to them by the state, (2) to perform public tasks for which there is a demand that neither the state nor not-for-profit organizations are willing to fulfill or (3) to influence the direction of policy in the state, the for-profit sector or other nonprofit organizations."

As we can see in such a definition, NPOs play a relevant role in society by attempting to satisfy human necessities in a different way, or as a complement of lucrative firms and governmental activity. In those activities that are not satisfied by for-profit firms because they do not obtain benefits, or by the state, because due to expense or there not being enough officials to provide them, NPOs fill this role in society, creating positive effects on human behavior. In this sense, we can include, for instance, trade unions, consumers unions and clubs of different kinds.

However, the main characteristic of NPOs, and one of the most important differences in comparison with for-profit organizations, is that the aim of the former is to maximize utility rather than maximizing profit. This kind of activity is not considered in the neoclassical models. It is well known that such models consider the role of for-profit firms that supply the goods and services that families need to satisfy their needs. The main assumption in these models is that the process of production rests on the assumption that such firms maximize profits. The following idea was described in Adam Smith's well-known passage from *The Wealth of Nations*: "It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages" (Smith 1776, Book I, Chap. ii, 2). Thus, it is not possible to consider altruistic behavior in the relationship between firms and families (see, e.g., Tan et al. 2005).

Accepting this approach, in these models there is no place for NPOs, and for this reason, NPOs were not included in the neoclassical growth models. However, this situation has changed in the last decade, and the role of NPOs has been included in economic growth models. However, it is necessary to show that NPOs have no direct effect on economic growth. In other words, its effects are indirect through a variable that directly enhances economic growth. In the next section we will study this situation.

3 A Schumpeterian approach

To analyze the relationship between NPOs and economic growth, we consider the Schumpeterian approach. Schumpeter was one of the first authors to

consider the relevant role of non-economic factors in the economic growth process. In his article entitled "Theoretical problems of economic growth" published in 1947 (Schumpeter 1947), he shows that the literature has considered different factors that are economic growth enhancing. Some of these factors that he identifies are physical environment, social organizations, institutions and technology (Schumpeter 1947, pp. 2–3). However, from his point of view, all these factors are not enough to explain the economic growth process, because "economic growth is not autonomous, being dependent upon factors outside of itself, and since these factors are many, no one-factor theory can ever be satisfactory" (Schumpeter 1947, p. 4). However, at the end of the article, he concludes that, "Since creative response means, in the economic sphere, simply the combination of existing productive resources in new ways or for new purposes, and since this function defines the economic type that we call the entrepreneur, we may reformulate the above suggestions by saying that we should recognize the importance of, and systematically require into, entrepreneurship as a factor of economic growth" (Schumpeter 1947, p. 8).

Taking into account this view, entrepreneurship plays a relevant role in the economic growth process, and for this reason, it is necessary to determine the factors that influence it and the role of NPOs in this process.

Schumpeter states that the entrepreneur is defined as a leader, and "leads" the means of production into new channels (Schumpeter 1911, p. 89), and he or she must not necessarily be "a genius or benefactor to humanity" (Schumpeter 1911, p. 90 ff). An entrepreneur has some expectation of a profit return as a precondition for decisions to innovate. From his point of view, entrepreneurial profit "is a surplus over costs [that is] the difference between receipts and outlay in a business" (Schumpeter 1911, p. 128). In this situation, those entrepreneurs that have a better situation would certainly experience higher profits. That is, an improvement of the product involves a better position for the entrepreneur that has the possibility to achieve higher profits. And innovation plays this role. For this reason, the innovation process is both growth and profit enhancing (see the relevance and role of innovation, Acs 2002; Acs and Audretsch 1988).

Therefore, from the Schumpeterian perspective, profits are an income derived from monopoly power positions (Oakley 1990, p. 139). These positions are obtained through the innovation process.

There is a second factor to be considered that is even more interesting in our analysis, which is the social environment. In such a variable, Schumpeter includes the reaction of social groups to entrepreneurial activity, including the innovation process. He considers the existence of legal or political impediments, and it is also possible to include the rule of law and the role of institutions. On the other hand, Schumpeter states that it would be possible to find some social opposition to the innovation process, and entrepreneurs would experience difficulty in finding the necessary cooperation. This resistance was more relevant when capitalism began to prevail, although it is still effective in the current market (Schumpeter 1911, p. 87).

In this sense, Schumpeter is not sufficiently clear about designing the variables that affect social environment. In general terms, it would include the democracy level and in particular income distribution. An income inequality reduction, a better distribution of the results from the innovation process, would reduce the social stress and the opposition to innovation. However, it is also possible to include other variables that could affect such social environments. In this case, we can also include the role of NPOs and social capital among the variables that affect social environment.

All in all, from the Schumpeter point of view, entrepreneurship is the most relevant factor in promoting economic growth. There is a huge amount of literature about such a relationship (Wennekers and Thurik 1999; Thurik 1999; Acs et al. 2004, 2005; Stel et al. 2005; Audretsch and Keilbach 2008; Audretsch et al. 2008; Audretsch and Keilbach 2004a, b, among others). He or she is profit-seeking and needs an adequate social environment to develop the activity (on the role of entrepreneurs in society, see Audretsch 2006, 2009). And it is in this social environment that NPOs play a relevant role and therefore have an indirect effect on economic growth (on these topics, see also Benz 2009; Caruana and Ewing 2002; Gert-Jan Hospers et al. 2009; Kearney et al. 2008; Mas-Verdú et al. 2009).

4 Economic growth model

Taking into account the previous ideas, the model to be considered in our analysis is represented in Fig. 1. As one can see, three main factors have a direct relationship with economic growth: public expenditure, investment and human capital, as shown in traditional modern economic growth literature.

For our purposes, and following the Schumpeterian approach, the main channel to consider in the effects of NPOs on economic growth is the investment process, and within this process, entrepreneurship activity is a relevant variable to consider. We have also seen that, from a Schumpeterian point of view, the main variable that promotes entrepreneurial activity is the social environment. And in such an environment we will consider three variables, income distribution, social capital and NPOs. Thus, as previously stated, the relationship between NPOs and economic growth is indirect.

It is widely established that social capital is a qualitative variable that has been mainly developed by sociologists, while economists have included it in their analyses. There is a vast amount of literature on this variable, and several definitions have been given. Following Durlauf and Fafchamps (2005, pp. 1643–1645), three main groups of definitions can be obtained:

1. Definitions that emphasize the beneficial social capital effects on social aggregates. In this group, the Coleman (1990) and Putnam et al. (1993) definitions could be included. The Putnam et al. definition stresses the specific informal forms of social organization, including trust, norms and networks. Coleman (1988) defines three different forms of social capital: (1) obligations, expectations and trustworthiness of social relationships; (2) informational channels; (3) norms and effective sanctions.

2. Definitions that consider social capital in terms of relations or interdependence between individuals. In this group, the Putnam (2000), Ostrom (1990) and Bowles and Gintis (2002) definitions could be included, among others.

3. Some definitions consider that only certain shared norms and values must be regarded as social capital. The Fukuyama (1997) definition would be included in this group.

According to Bourdieu (1986, p. 249), the volume of social capital in a society depends on the extent of the network connections to be mobilized and the volume of capital possessed by the individuals in the network. Therefore, the main characteristic distinguishing social capital from other institutional relationships rests on the result of investment strategies focusing on establishing and maintaining networks. This investment could create new relationships and transform existing ones.

It is also necessary to take into account that social capital is different from other forms of capital, and

Fig. 1 Main variables in the economic growth process. *Source*: Own elaboration
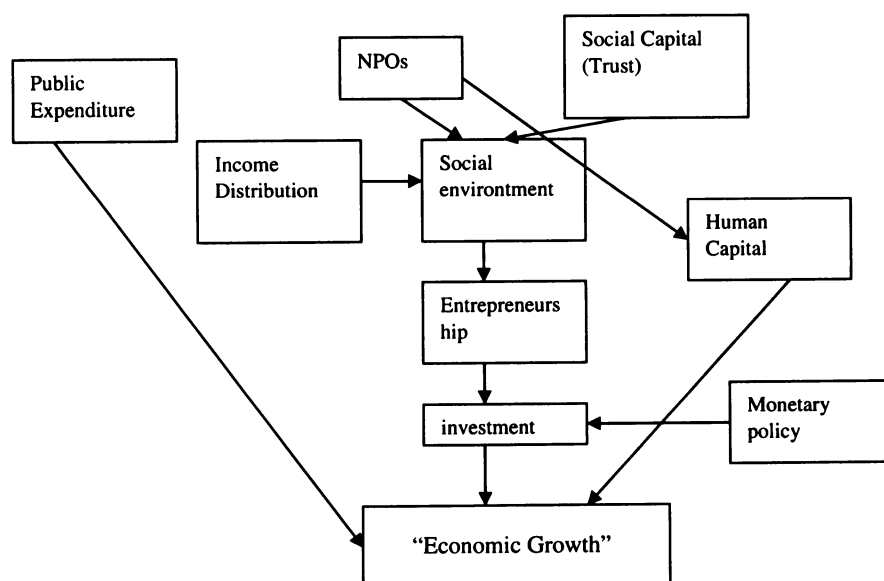
the two must be distinguished from one another. In this sense, Robison et al. (2002) state that the main difference is that social capital exists in a social relationship. In contrast, human capital resides in the individual alone, but this does not mean that human capital creation is not collective.

In our case, we must stress the second group of definitions. In this case, the general definition of social capital would include social networks and norms related to such networks that create value in both individual and collective ways (Putnam and Gross 2003, p. 14). In this concept, not only institutions are considered, but also the behavior of economic agents in society is also considered, taking into account cooperation among them. In this sense, different topics and values must be included, such as honesty and mutual agreement, which enhance productivity and finally economic growth. Social capital thus implies an increase in trust and cooperation among individuals, building a more prosperous society, facilitating education transmission, the acceptation and assimilation of new technologies, and on many occasions, families and some associations transfer financial resources to their members, thereby obtaining funds to finance their knowledge acquisitions or their investments (Putnam 1993; Fukuyama 1995; Woolcock and Narayan 2000 and Wolcock 2001). If this definition is accepted, social capital has indirect effects on economic growth, because it facilitates, for example, the improvement of the social climate that enhances entrepreneurial activity.

The literature has considered that the importance of social capital in the entrepreneurship field has been attributed to the fact that they provide resources, access to resources or emotional support (Lin 2001; Birley 1985; Bahmani-Oskooee et al. 2008; Carrasco and Castaño 2009). In this sense, the relevance is due to the fact that entrepreneurship is linked to innovation and competitive advantage. Therefore, it is not only necessary to have public policy initiatives that encourage new business, but also the existence of established organizations that actively encourage the pursuit and development of new activities. Social capital plays a relevant role in this encouragement, facilitating the necessary resources to create a new business (Castaño and Carrasco 2005; Castaño 2007).

In this sense, there is a positive effect on entrepreneurs that is the creation of a favorable entrepreneurial environment that encourages people to develop their activity. In an adverse environment, it is quite difficult to provide incentives for entrepreneurial activity. As Solomon (2002) states, entrepreneurs need to use their ingenuity to develop their task, and this does not mean that they lie or try to take advantage of others.

Finally, it is also necessary to take into account that NPOs have an effect on human capital. Therefore, NPOs have an indirect influence on economic growth through human capital.

Thus, taking into account the previous considerations, the hypotheses to be tested are:

Hypothesis 1 Public expenditure, human capital and investment have a positive effect on economic growth.

Hypothesis 2 Social climate has a positive effect on entrepreneurship.

Hypothesis 3 Entrepreneurship has a positive effect on investment.

Hypothesis 4 NPOs have a positive effect on human capital.

Hypothesis 5 NPOs have an indirect positive effect on economic growth.

4.1 Empirical estimation

To test the previous hypothesis, we are going to develop the empirical estimation. Considering the previous model, we consider the following countries: Denmark, Finland, France, Germany, Italy, Japan, the Netherlands, Spain, Sweden, the UK and the USA, for the period 2000–2005. We have only obtained the necessary data information for the variables used in the model in these countries.

In the case of income distribution, we have used the Gini index, and for NPOs and social capital we will use the data supplied by the World Value Survey (2009). Namely, for NPOs we consider the data possessed by labor unions and for social capital, we consider the data from sports or recreation associations. The data clearly have positive effects on productivity.

For entrepreneurship, we use the Total Entrepreneurship Activity, TEA, created by Global Entrepreneurship Monitor, GEM. Every year, GEM carries

out a research program that estimates the national entrepreneurial activity in each country that participates in the survey, estimating the TEA index. The source of the remaining variables is the World Bank.

All models are estimated by polling data from the 11 countries mentioned above over the period 2000–2005 in a panel format using a total of 66 observations. The estimation method is ordinary least squares, and whenever necessary, country-specific factors are accounted for by including dummy variables in the estimation procedure.

Hypothesis 1 Public expenditure, human capital and investment have a positive effect on economic growth.

In this sense the equation to estimate is:

$$\ln(y)_{it} = \beta_0 + \beta_1 \ln(\text{PE})_{it} + \beta_2 \ln(I)_{it} + \beta_3 \ln(\text{KHU})_{it} + \varepsilon_{it}.$$

$$(1)$$

Equation 1 is the GDP equation, where y is gross domestic product (GDP), PE denotes public expenditure, I denotes private investment and KHU denotes human capital. The expected signs are positive in the cases of I and KHU. The sign of PE is ambiguous. Some authors state that fiscal policy has a negative impact on private investment, thanks to the crowding-out effect, and finally on economic growth (e.g., Bertola 1993; Perotti 1993; Alesina and Rodrik 1994; and Persson and Tabellini 1994, among others). However, there are also studies that oppose this view (Bénabou 1996a, b; Bourguignon and Verdier 2000), concluding that a redistributive policy will have positive effects on investment through different ways, such as increasing public investment (Saint-Paul and Verdier 1993) or reducing credit market imperfections or liquidity restrictions that have a negative impact on investment in physical and human capital (Galor and Zeira 1993; Perotti 1993; Banerjee and Newman 1993; Piketty 1997; Aghion and Bolton 1992).

The results are shown in Table 1.

As one can see, the signs are positive, and the variables are significant. Therefore, investment and human capital both have a positive effect on income.

Hypothesis 2 Social climate has a positive effect on entrepreneurship.

Table 1 GDP equation estimation

Dependent variable: ln y
Years: 2000–2005

Variable	Coefficient	Std. error	t-Statistic	P
Constant	2.0755	0.7731	2.68	0.010
ln PE	0.1206	0.0254	4.73	0.000
ln I	0.7890	0.0464	16.99	0.000
ln KHU	0.1024	0.0131	7.80	0.000
R-squared	0.9996			
Sum squared residual	0.0351	Durbin-Watson stat		1.1479

Source: World Bank

The equation to estimate is:

$$\ln(\phi)_{it} = \beta_4 + \beta_5 \ln(\text{SK}) + \beta_6 \ln(\lambda)_{it} + \beta_7(\text{NPO}) + \varepsilon_{it}.$$

$$(2)$$

Equation 2 is an entrepreneurship equation (ϕ) that considers the aspects analyzed in the previous sections. As we have shown, following the Schumpeterian approach, entrepreneurship activity will be mainly affected by social climate. As we stated in the previous section, we consider three variables to describe such social environments: non-profit organizations (NPO), income distribution (λ) and social capital (SK).

With regard to the signs, certain aspects must be taken into account. In the case of NPO and SK, the signs are expected to be positive. However, in the case of income distribution, there is no homogeneous conclusion.

When we take into account income distribution, it is necessary to consider two possibilities: first, the effect on workers; they see that their wages are impoverished in comparison to other incomes. In this sense, it is also necessary to consider not only the differences between wages and other incomes, but also discrepancies among salaries. For instance, the introduction of new technology and the slow process of skill improvement could generate job losses or lower wages for the unskilled worker (Juhn et al. 1993; Piketty 1997). In these cases, higher inequality and worse income distribution would create social strains and would have a negative impact on entrepreneurial decisions and in the case of credit market

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restrictions that reduce the investment possibilities of less rich people (Tsiddon 1992; Saint-Paul and Verdier 1992; Galor and Zeira 1993; Banerjee and Newman 1993).

Second, the effect on entrepreneurs needs to be looked into. Higher inequality means that rich people have more possibilities to save and for this reason there are more resources to invest. On the other hand, if more income is achieved by entrepreneurs they would have more resources to invest and to innovate, and this is especially relevant in periods of credit market restrictions.

For this reason, the literature highlights two possibilities in the case of income distribution. First, in the literature that appeared in the 1950s and 1960s, it was accepted that higher inequality would enhance economic growth (e.g., Kaldor 1956; Kelly and Williamson 1968; Cook 1995). Following a Keynesian view, they considered the hypothesis that savings are related to income and play a relevant role in the economic growth process. This implied the use of a redistribution fiscal policy that shifts income from poorer to richer, who have a higher propensity to save.

Second, this view has been criticized and changed during the last few decades. The empirical literature showed from this new position that there could be a negative relationship between inequality and economic growth (Kuznets 1955; Galor and Zeira 1993; Persson and Tabellini 1994; Alesina and Perotti 1996; Aghion et al. 1999; Zou and Li 2000; Alfranca and Galindo 2006). Different channels could explain this new view (Perotti 1996, pp. 150–154; Aghion et al. 1999, pp. 1621–1630):

1. Fiscal channel. In an unequal society, poor voters will vote for those fiscal programs that promise a better income distribution through taxation or public expenditures. Such a measure implies the fiscal redistribution must be financed by distortion taxation that distorts economic decisions, and discourages investment and finally economic growth (Alesina and Rodrik 1994; Bertola 1993. For the public capital effects, see Alfranca and Galindo 2003).

2. Socio-political problem. Some literature (Alesina and Perotti 1996; Bénabou 1996a, b) has stressed the impact of income inequality on political instability and social tensions. These problems

will increase uncertainty that leads to a lower investment and economic growth.

3. Education (Becker et al. 1990; Saint-Paul and Verdier 1993; Sylwester 2000). The empirical evidence shows that education has a positive effect on economic growth. In the case of income inequality, higher inequality implies a greater degree of underinvestment in education when credit markets are imperfect.

4. There are also other channels that consider the relationship between income distribution and growth, including democratization (Bourguignon and Verdier 2000), property rights (Svensson 1998; Keefer and Knack 2000) and economic volatility (Alesina and Perotti 1996), among others.

Therefore, the final effect of income distribution on entrepreneurship will depend on the balance of these two situations or forces. If the former is stronger, then a higher inequality will be necessary; if the latter is stronger, then it would be necessary to improve income distribution.

The results are shown in Table 2.

In this case, all the signs are positive. Therefore, NPOs have a positive effect on entrepreneurship. The sign of income distribution shows that the Keynesian point of view is relevant.

To complete this analysis, it is also convenient to include the feedback process that is the income effect on entrepreneurship. At first sight, higher economic growth would generate better expectations. Individuals would have more money to spend, so

Table 2 Entrepreneurship equation estimation

Dependent variable: ln ϕ
Years: 2000–2005

Variable	Coefficient	Std. error	t-Statistic	P
Constant	−3.4501	0.80556	−4.2828	0.000
ln SK	0.41775	0.064002	6.5272	0.000
ln GINI	0.30211	0.22325	1.3533	0.181
ln NPO	0.31824	0.075405	4.2204	0.000
R-squared	0.56744			
Sum squared residual	6.6696	Durbin-Watson stat		1.8760

Sources: GEM, World Bank and World Value Survey (2009)

there would be more business possibilities and it would stimulate investment. Therefore, it would increase entrepreneurial activity.

However, there are also other aspects to be considered. First, it depends on the existing entrepreneurial culture existing in a society. Higher economic growth implies better opportunities for finding a job, and many individuals would prefer to receive a lower salary for their activity than create a business that entails risk, in spite of the fact that the eventual gains could be higher.

Second, globalization processes could enhance competitiveness in the country, and foreign direct investment is increasing in the country and, depending again on the culture and capacity of people, many individuals could consider that they are not apt to compete and then decide not to invest.

Third, in developed countries there are fewer opportunities to create new markets or to introduce new market niches. On the other hand, wages are higher than in other less developed countries. Either of the circumstances creates a disincentive for the creation of new businesses and stimulates the incentive to create them in other countries with more market opportunities or with lower wage costs.

In this sense, during recent years, the Global Entrepreneurship Monitor (GEM) has calculated the TEA index (Total Entrepreneurship Activity) for several countries, and the data show that developing countries have a higher TEA index than developed countries.

For this reason, it is possible that income would have a negative effect on entrepreneurship decisions.

All in all, we can include a subhypothesis:

2a Economic growth could reduce entrepreneurial possibilities.

In this case, the equation to estimate is:

$$\ln(\phi)_{it} = \beta 4 + \beta 5 \ln(\text{SK}) + \beta 5 \ln(\lambda)_{it} + \beta_7(\text{NPO}) + \beta_8 \ln(y)_{it} + \varepsilon_{it}. \qquad (2')$$

The signs in this case are the same as in the Eq. 2, and y could be positive or negative.

The results are shown in Table 3.

As one can see, a higher income reduces the entrepreneurship activity due to the reasons given previously.

Table 3 Entrepreneurship equation estimation including income feed back

Dependent variable: ln ϕ
Years: 2000–2005

Variable	Coefficient	Std. error	t-Statistic	P
Constant	−3.3152	0.7953	−4.16	0.000
ln SK	0.4278	0.0632	6.77	0.000
ln GINI	0.5871	0.2714	2.16	0.034
ln NPO	0.2927	0.0755	3.87	0.000
ln Y	−0.0728	0.0408	−1.78	0.079
R-squared	0.5889			
Sum squared residual	6.3388	Durbin-Watson stat		2.0106

Sources: GEM, World Bank and World Value Survey (2009)

Hypothesis 3 Entrepreneurship has a positive effect on investment.

In this case the equation to be estimated is:

$$\ln(I)_{it} = \beta 9 + \beta 10 \ln(\text{ms})_{it} + \beta 11 \ln \varphi + \varepsilon_{it}. \qquad (3)$$

Equation 3 is the private investment equation where ms is the money supply, and φ is the entrepreneurship index. In this case, the expected sign of the money supply and of entrepreneurship is positive. Thus, in this equation we include the effects of monetary policy on the investment process. If there is no money restriction in the credit market, entrepreneurs would have more possibilities to invest. For this reason, we consider two factors in the investment process, mainly entrepreneurship and monetary policy.

The results are shown in Table 4.

As we can see, both signs are positive.

Hypothesis 4 NPOs have a positive effect on human capital.

The equation to estimate is:

$$\ln(\text{KHU})_{it} = \beta 12 + \beta 13 \ln(\text{NPO})_{it} + \varepsilon_{it}. \qquad (4)$$

Equation 4 is the Human Capital Equation, including NPO. The expected sign is positive because NPOs could be a supplement to the formation process carried on by the universities and schools.

Table 4 Investment equation estimation

Dependent variable: ln I
Years: 2000–2005

Variable	Coefficient	Std. error	t-Statistic	P
Constant	12.3188	0.5691	21.64	0.000
Ln MS	0.1501	0.0384	3.911	0.000
Ln ϕ	0.0480	0.0347	1.383	0.172
R-squared	0.9975			
Sum squared residual	0.2748	Durbin-Watson stat		1.1799

Sources: GEM and World Bank

Table 5 Human capital equation estimation

Dependent variable: ln KHU
Years: 2000–2005

Variable	Coefficient	Std. error	t-Statistic	P
Constant	5.4829	2.7557	1.99	0.052
ln NPO	0.8298	0.4258	1.95	0.057
R-squared	0.9544			
Sum squared residual	5.3583	Durbin-Watson stat		0.9407

Sources: World Bank and World Value Survey (2009)

The results are shown in Table 5.

The results show that there is a positive relationship between NPOs and human capital.

Hypothesis 5 NPOs have an indirect positive effect on economic growth.

The results of the previous hypothesis show that there is an indirect NPO effect on economic growth through two variables: first, entrepreneurship-investment and human capital. NPOs improve the social environment that enhances the entrepreneurship activity and the investment process. Second, it is a supplement to improve training and education, favoring the technological *catch-up* process that enhances growth (Abramovitz 1986, 1989; Baumol 1986).

5 Conclusions

Following the Schumpeterian approach, we have analyzed the relationship between NPOs and economic growth. The effects of NPOs on the growth process are indirect, that is, they act mainly through two variables: entrepreneurship and human capital, in the former improving the social environment and in the latter promoting training that favors the technological *catch-up* process, that is, the workers are better able to use new machinery and innovation, thus being more productive.

We have considered the case of 11 countries to develop our empirical analysis. We will attempt to improve our paper by analyzing these effects on less developed countries and to compare the results. To carry out this analysis, it is necessary to improve the data information in the case of some variables. We are also interested in including other policy and non-economic variables, such as corruption and rule of law, to consider other relevant effects. Again, in this case, more data will be necessary.

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