TRUST AND ITS IMPACT ON THE ECONOMIC GROWTH

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Abstract

The new models of development take into account the influence of social capital in inducing the economic growth. Assuming that trust is one of the main dimensions of the social capital, we demonstrate that it is able to reduce the transaction costs and to lay off large amounts that can be redirected towards investments, thereby inducing economic growth. The policy makers are responsible for taking this into account and promote the budgetary measures able to raise the level of trust in a society. We believe, based on the model designed by Zack and Knack, that in addition to the policies which guarantee the contracts, strengthen the formal institutions that prevent the abuses, reduce the social heterogeneity and economic growth, the growth optimization is possible to be achieved by allocating sufficient resources to education. The inference is based on an empirical research on the Romanian society, whose results are presented in this study.

1. INTRODUCTION

When talking about the welfare of a nation, as economists, we would immediately think about quantifying the labor and capital, about technology, investments and other traditional determinants. It is hard to accept that there are other elements which can substantially contribute to sustain the economic growth, considering that almost all of our education as economists is based on Samuelson's reinterpretation of his famous Economics. But the economic science is always the subject of major challenges that come from many directions. Although the first economists, led by Adam Smith, left open the possibilities of interpreting their theories, considering that the assumptions of rationality and homogeneity are very simplistic (see Smith's "Theory of Moral Sentiments"), the neoclassical synthesis has closed many of these gates, blocking, through the rigidity of the models it generated, other approaches than the mechanistic ones about human behavior. A revolution of the traditional model was necessary, induced by the developments based on Solow's research, and then on those of Garry Becker, Gordon Tullock, Milton Friedman and L. Von Mises and on their interference with the theories from sociology, such as those of Robert Putnam and James

Coleman, in order to take again into account variables related to human behavior and typology. We will address in this paper one of these variables, called trust.

Traditionally, confidence can be defined as "the willingness to allow the decisions and the actions of the others to influence our own welfare" (Sobel, 2002, 148), and includes a personal investment in the action and decision of those persons or institutions that may influence our own decision. Trust can be regarded at several levels: in personal actions, in the civic ones and vis-à-vis the government's act. The size of the trust at the societal level may substantially depend on its welfare. Douglas North noted that the company's inability to obtain lower costs in running the contracts represents the largest source of stagnation and underdevelopment in the Third World (North, 1990, p.54). It should be noted that trust can be influenced by formal and informal institutions (Zack, Knack, 1998, p4). J.S. Mill, which was not only a famous economist but also a remarkable politician, said that "much of the security of person and property in modern nations is the effect of manners and opinion... (rather than) direct the operation of the law and the courts of justice "(Mill, 1848, p. 135). So the informal rules seemed to be more powerful in Great Britain, during the XIXth century, than the formal ones. Instead, Thomas Hobbes considered the public authority and the regulations the main sources of trust between individuals. No matter what type of rules has primacy, the observation remains the same: trust reduces the transaction costs and increases the output.

The theme of trust was taken and developed by the one who announced the stagnation of the development and the end of history, Francis Fukuyama. Solving the economic and social problems is much easier, according to the author, when there is a magical "lubricant" called trust [Fukuyama, 1995,16]. The societies in which there is a high level of trust are developing faster and more stable, showing a higher efficiency on all its levels. Although intuitively we all knew this, Fukuyama managed to make it real through a great connection between the theoretical ideas and a wide range of empirical studies conducted on companies with various stages of development.

Trust is a cultural attribute, which appears and develops over time or, as R. Inglehart very nice noticed, "social capital is a culture of trust and tolerance" [Inglehart, 1997,15]. But, precisely because it has this cultural mark, it is very difficult to identify a common set of decisions that governments can serve to foster stock of trust.

A very interesting approach to the concept of trust belongs to Zack and Knack (2001), who assumes that trust can be seen as a measurable concept; actually, it is the amount that is not spent on the specification and verification of the contractual arrangements, having the ability of being saved and transformed into a source of capital. In the paper Trust and growth (2001) they conclude that an increase of 15% of the trust level leads to an increase of 1% of GDP per capita. They also identify some policies and measures of public policies related to the increase in the level of education, to the income redistribution and the strengthening of individual liberties that determine the raise of the level of trust between individuals and between individuals and institutions. Besides, our approach will be based on the model developed by them.

2. THE CONNECTION BETWEEN TRUST AND THE ECONOMIC PERFORMANCE IN ROMANIA. EMPIRICAL ANALYSIS

2.1 Methodology

At this stage our investigation was based on an inquiry and documentary study. It was used a questionnaire self-managed, which includes some questions that highlight the level of trust and interpersonal relations. It was considered a proper distribution of the adult respondents, the sample being defined through a non-probabilistic procedure based on quotas, according to the Statistical Yearbook of Romania (INS, 2007). As segmentation variables there were considered the age and the sex. Also, it was taken in consideration the level of education, without detailing it on age and sex. The sample shows that 68.8% have no more than secondary education and the remaining 31.2% are university graduates, according to the real distribution at the macro-social level. There were applied 350 questionnaires, of which 202 were validated. The pre-test of the questionnaire was made on a group of 40 individuals.

2.2 Results and findings

Regarding the level of trust, the results of the questionnaire can be found in Table no. 1. Rating scale was from 1 to 5. It can be noted that the highest score is taken by the family, with 4.24, which shows that the type of trust is the bounding one, oriented especially towards small groups with closed links. A high score, from our point of view, belongs to school, which shows that education plays an important role in the individuals' lives, being the belief that a higher level of education leads to higher future income.

Table no. 1 Trust in institutions

	N	Mean	Std. Deviation
Trust – army	198	3,24	1,210
Trust – church	199	3,19	1,429
Trust – local government	195	2,28	1,143
Trust – parliament	197	2,10	1,176
Trust – government	196	2,02	1,146
Trust – president	198	2,53	1,324
Trust – school	199	3,38	1,187
Trust – family	201	4,21	1,182
Trust – companies	197	2,95	1,151
Trust – managers	197	2,79	1,238
Valid N (list wise)	195		

The public institutions that have a high level of confidence are the army and the church, these institutions traditionally determining, together with justice, a high level of confidence in public policies (Zack, Knack, 2001). Although we have not included justice in the questionnaire, similar surveys (GfK trust index, 2010), which obtained similar scores and items for family, church and army as us, situate the justice slightly below the half of the

maximum score, which indicates a lack of confidence in the power of the Romanian justice. This result may be a suggestion to policy makers to improve the judicial system through reforms and a better funding, potential output of this process being much greater than the costs.

Interesting and relevant for macroeconomic policy makers is the way in which institutions are perceived according to education level of the respondents. The Mann-Whitney U test revealed that people with secondary education have a greater trust in church (Md = 4, n = 137) than those with university education (Md = 3, n = 62) which distributes more the tiers of trust between family, church and state institutions.

*Table no. 2 Correlation Business Association * Level of Education Cross*

| | | | Level of education | | |
			High School	Univ. grad. graduation	Total
Business association	Sole manager	Count	75	45	120
		Expected Count	82,6	37,4	120,0
		% within Business Association	62,5%	37,5%	100,0%
		% within Level of education	54,0%	71,4%	59,4%
		% of Total	37,1%	22,3%	59,4%
	In association	Count	64	18	82
		Expected Count	56,4	25,6	82,0
		% within Business Association	78,0%	22,0%	100,0%
		% within Level of education	46,0%	28,6%	40,6%
		% of Total	31,7%	8,9%	40,6%
Total		Count	139	63	202
		Expected Count	139,0	63,0	202,0
		% within Business Association	68,8%	31,2%	100,0%
		% within Level of education	100,0%	100,0%	100,0%
		% of Total	68,8%	31,2%	100,0%

It is assumed that the spending on education can lead to the decrease of the transaction costs much more than Knack and Zack assumed in their model. For example, the business confidence in the private sector significantly increases from those with secondary education to those with higher education. Thus, among those interviewed, 86.2% expressed their interest for a private employer, while only 60.6% of those with secondary education had the same option. There was a significant association between the preference for a particular type of employer and the educational level, χ^2 (1, n = 195) = 12.337, p <0.001, phi = 0.252. Meanwhile, there is a significant association between the education level and trend of continuous training χ^2 (1, n = 198) = 33.907, p = <0.001, phi =- 0.414. The proportion of those with higher education who are attending general courses is 50.8%, while only 12.4% of persons with undergraduate studies are participating in such courses. The ratio of the probabilities sows that it is 7.29 times more likely that a person with higher education have completed general courses compared to a person with a secondary education. And in terms of confidence in their own success in a business there were significant differences. Hi square test, χ^2 (1, n = 198) = 5.488, p = 0.019, phi =- 0.165 shows that 71.4% of those with higher education would prefer a business as sole managers and only 28.6% would not trust in their own forces and would appeal to shareholders. To those with secondary education, the percentage drops to 54%. The ratio of the probabilities indicates that it is 2.13 times more likely

that a person with higher education prefer a business as a sole manager than a person with secondary education.

The level of trust in the social networks has also been tested through attitude towards the bribe. The high percentage of those willing to pay bribes to solve problems is quite high (40.6%), whereas only 37.1% would not give bribes, which shows that confidence in formal networks is quite low and in the informal networks - the bonding type - is high. This result is positively correlated with the low confidence in the judicial, legislative and executive body. There are differences regarding the level of education, those with higher education are less likely to offer bribes. It would be expected that policy makers expand the efforts to strengthen these institutions and their credibility, as determinants of the level of trust in a society (Putnam, 1993).

A good result is related to the high level of trust in the microeconomic entities, namely the firms. The ratio of those who trust in their leaders (more or normal) and those who do not trust (or trust less) is 77% to 23%. The situation is almost identical to the trust in colleagues (78.1% to 21.9%). There are the same percentages for the confidence in the work colleagues. Most of the respondents (71.6%) believe that their confidence level in colleagues is between normal limits. There is also a significant percentage of those who have little trust in their peers (17.4%). The attitude towards the companies is a positive one, the champions being the multinationals. Half of the respondents (49.3%) believe that foreign companies present in Romania offer them benefits while only 3.5% believe that they bring disadvantages. There is also a significant percentage of those who answer "I do not know" (47.3%).

Some of the most important determinants of the level of trust are the welfare and the income. We tried to determine the correlations, assuming that those with low level of trust will want to emigrate. Thus, a significant percentage (55.5%) of those surveyed want or seriously take into account the possibility of emigration.

Table no. 3 The emigration desire

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, definitely	24	11,9	11,9	11,9
	Yet, I consider this	88	43,6	43,6	55,4
	No	90	44,6	44,6	100,0
	Total	202	100,0	100,0	

Offering them a number of five possible reasons, with the possibility of classification according to the importance, 67.9% of respondents considered the main reason the welfare, while 63.4% have placed on the second position the income. It is interesting that on the third place, 38.4% put, as a reason, the distrust in the future evolution of the society.

From the above analysis, we conclude that trust depends on some factors, such as:
- the social and economic heterogeneity (to be considered the very different answers according to the level of education, age or sex), which increases the quantity of the asymmetric information;
- the social rules that limit or remove the abuses (the bribe case);
- the formal institutions that guarantee the contracts' development;
- the welfare;

- the income;
- level of education.

According to Zack and Knack's analysis, the first five components explain over 70% of the variations in the level of trust between nations. It is expected that education and its structure have a significant contribution. A study conducted by Krueger and Kumar (2004), *US-Europe Differences in Technology-Driven Growth: Quantifying the Role of Education, Journal of Monetary Economics*, highlights the significant differences in growth rates between the U.S. and Europe during the 80s, induced by the budgets allocated to education and by the way in which they were distributed according to the type of training. In 1996 Barro showed that an increase with a year in the number of years of study leads to an augmentation of the growth rate with 1.2%.

Considering the results of the empirical analysis, we believe that the model developed by Zack and Knack is relevant as a starting point for our study. But they removed from the analysis an important element that does raise major problems of quantification, namely education. The relevance of education for the economic growth is considered to be major by most of the analysts of the new models of economic growth, being closed links between the level of education, productivity and income.

Table no. 4 The number of the school years and the level of the income, on types of countries

The highest level of education	Number of the school years	Income related to the school years	Developing countries (%)	Developed countries (%)
0 school years	0	1	34,4	3,7
Unfinished primary school	4	1,65	22,6	11,7
Finished primary school	8	2,43	11,9	13,4
Unfinished secondary school	10	2,77	16,3	26,5
Finished secondary school	12	3,16	8,3	16,6
Unfinished tertiary education	14	3,61	3,5	15,1
University graduates	16	4,11	3,0	13,0

Source: [Weil, D.N., Economic Growth, Ed. Addison Wesley, 2004]

Some links exist, though not obvious, and they put a mark on the transactions' development. For example, the degree of abstraction of the laws and regulations may cause different reactions. Those who are able to decipher and understand them can choose between respect or evade them, but most choose the fair option; yet, the uneducated people either ignore them or do not know how to understand and, consequently, cannot apply them. According to Miller et al. (1997), the individuals' trust derives from the size of their expectations of being fairly treated. But the accuracy involves a value judgment that usually can be undertaken only by those educated, otherwise there is a high risk of distortion of the correct meaning and, therefore, of the emergence of some wrong expectations. Consequently, education plays an important role in the sphere of social or economic action. Therefore, we introduce in the below model the education factor, which can be measured with the help of the public expenditure from GDP.

2.3 The econometric model

If we define trust in the sense that Zack and Knack did, as a consequence of some rational inferences, then we can assume that it is measured by the proportion of income that is spent for carrying out the contracts between traders. Thus, if we note with Y_t the income and with η_t the transaction cost, then the trust at a certain time t is, according Zak and Knack [Zak, Knack, 2001]:

$$T \equiv \frac{Y_t - \eta_t}{Y_t}, T \in (0,1) \quad (1)$$

Although, generally, trust is difficult to quantify, having a strong subjective component, it can be measured with the help of the effect it has on income, because the effect of any human action or inaction has a monetary impact resulted in costs or revenues. Going on this route, Zack and Knack, two of the pioneers of the economic analysis of trust, have transformed the subjective in objective, approaching the trust as a decision based on rational judgments, and not as a subjective feeling. Once established this thing, measuring the level of trust and its effects may become a concern of the economists, extracting the concept from the sociological sphere. If we also introduce in the analysis the concept of transaction costs, then we are dealing with elements of the production theory, talking about the input-output relationship.

We define the function of the transaction costs as:

$$\eta \colon \mathbb{R}^5 \to \mathbb{R}^+,$$
$$\eta_t = \eta(e_t, \psi_t, \lambda_t, y_{t-1}, \zeta_t),$$

Where the first four influence factors are those introduced by the authors mentioned above and they mean:

    e- contracts' performance;

    ψ- incomes' inequality;

    y- income per capita;

    λ- the public policy's financing that directly influence the level of trust;

    and the fifth factor, which does not appear in the initial model;

    ζ – level of education.

The empirical tests shows that the η, the transaction cost, is the inverse function of e (complying with the contracts) and of the income per capita y. Meanwhile, it has to be noted that the income inequality leads to the decrease in the level of trust and to an augmentation of the transaction costs. In terms of the budgetary allocations for those policies that directly affect the trust (such as those for police, army, justice), they affect the function of the transaction costs in an opposite way. The problem of education is also linked to the budgetary allocations. But it does not directly affect the trust, as it is the case of justice, but indirectly by changing the perception and the attitude towards the high values. Therefore, we can assume that the link between the cost of a transaction and the education is inversely proportional. Therefore, we introduce the fifth factor of influence, ζ - education, which we consider very important in the light of various studies we have previously analyzed in a larger work [Popescu, Pohoata, 2007]; these studies underline the contribution of education, as a factor of endogenous growth. Our empirical study shows that the perception of the individuals substantially changes depending on the quantity and quality of education they received.

If we were to analyze the public policy instruments that have an impact on the factors of influence of the transaction cost, then, according to Zack and Knack, we have a major in-

fluence of the funding increase in the judiciary system to the fair contracts' development. We note with p the legal funds and we have e = e (p). The income inequality is influenced by the redistribution. If we note with σ the transfer income, then ψ = ψ (σ). If we note with s the public expenditure on education, then we say that ζ = ζ (s). λ, the costs of public funding in areas that directly affect the trust, can be viewed as an investment in the social capital described by Putnam (2001) and Coleman (2009), which lead to the formation of bridging ties that increase the level of trust. In terms of the income per capita y_{t-1}, we support the approach of Zack and Knack, according to which it is rather a control variable in empirical testing than a variable of public policy, especially since it is about the income from previous period which, in turn, according to Keynes, is influenced by the policy measures from the period t-2.

In order to be relevant the model, it is assumed that individuals have an adaptive behavior, reactive, which is based on changes of the rational decisions. However, it is assumed that the primary public policy goal is growth, hypothesis that justifies the acceptation of the state as a decision leader and the individuals as followers. Usually, by setting this goal, we fit a model of endogenous growth. To address the model in an input-output version, the objective is to maximize the capital, which does not distort the result. Macroeconomic function of the income shows a direct link of dependency between income and capital stock but, at the same time, the two major factors of influence, labor and capital, although they are interchangeable, are independent. Or, in our model, the trust carrier is also the owner of the labor factor and therefore it is impossible to clearly separate the qualitative and quantitative aspect. Moreover, we want to show that the accumulation of capital stock depends on trust. So, the public policies' objective will results from the maximization function, according Zak and Knack:

$$Max_{p,\sigma,\lambda,s} \frac{K_{t+1}}{K_t}, \quad (2), \text{ where}$$

$K_{t+1} = \beta(Y_t - f_t - \eta_t) + (1-\theta)K_t$ - is the capital from the period t=1, obtained through the net investment resulted from the savings derived from:

diminishing the transactional costs $\eta_t = \eta(e(p_t), \psi(\sigma_t), \lambda_t, y_{t-1}, \zeta(s_t))$ (3)

and the deduction of the direct taxation $f_t = p_t + \sigma_t + \lambda_t + \zeta_t$.

To finance the policies it is considered a lump-sum system based on a lump-sum tax f, which is equal to the amounts allocated for judicial funds, income transfers, financing policies that directly affect the trust (which can be seen, according to Zack and Knack, as an investment in civic culture, which strengthens the interpersonal links) and the financing of education (which includes all the costs related to school education).

So, after all the taxes and the transactional costs are deduced from the total income, a proportion β remains available, with values between 0 and 1, which is saved. Being a Solovian saving[i], all the saved sums are invested, determining an increase in the capital stock. Therefore,

$$I_t = \beta(Y_t - f_t - \eta_t) = K_{t+1} - (1-\theta)K_t \quad (4), \text{ where } \theta \text{ is ratio of the}$$

physical devaluation of capital, with values between 0 and 1. In order to simplify the model, it is considered that the population remains constant.

Optimizing the function (2), we have the following conditions:

a. $1 = -\eta'_e(e(p_t), \psi(\sigma_t), \zeta(s_t), \lambda_t, y_{t-1})e'(p_t)$. Consequently, η, the transaction

cost decreases compared to e, which suggests that $\eta'_e < 0$. It results that $-\eta'_e > 0$, so

$e'(p_t) > 0$. This relationship shows that we will have an increased efficiency of the contracts' development when the judicial funds augment.

    b. $1 = -\eta'_\psi(e(p_t), \psi(\sigma_t), \zeta(s_t), \lambda_t, y_{t-1})\psi'(\sigma_t)$. Consequently, η, the transaction cost increases compared to the income inequality, meaning $\eta'_\psi > 0$. It results that $-\eta'_\psi < 0$, so $\psi'(\sigma_t) < 0$. This relation shows that the income inequality is an inverse function of income's transfers σ_t.

    c. $1 = -\eta'_\zeta(e(p_t), \psi(\sigma_t), \zeta(s_t), \lambda_t, y_{t-1})\zeta'(s_t)$. Consequently, η, the transaction cost is descending compared to ζ. If $\eta'_\zeta < 0$, then $\zeta'(s_t) > 0$, so the level of the education increases in relation to the spending with education s_t.

    d. $1 = -\eta'_\lambda(e(p_t), \psi(\sigma_t), \zeta(s_t), \lambda_t, y_{t-1})$. It results that $\eta'_\lambda < 0$, so the transaction cost is descending in relation to the budgetary allocations for the policies that directly influence the level of trust, which strengthen the civic culture.

4. CONCLUSIONS

At the macro level, trust is a public policy decision and not a social state with uncertain determinations. This study started from Zack and Knack's hypothesis, according to which the increase in public spending for certain areas such as justice, civic culture and income redistribution policies in correlation with the requirements of a modern society, focused on increasing national wealth, but not a radical polarization of it, are able to reduce the transaction costs by augmenting the level of trust.

From our empirical study we have noticed that an important role for having a high level of confidence is also played by the number of school years. Therefore, we have also taken into account in the maximization function the education, which directly depends on the size of budget allocations for this area.

Considering all the assumptions involved by the model, which is a constant population that behaves rationally, saving and investing, reacting in the way it is anticipated by the measures of public policy, does not evade the law and taxation, makes their life plan and take advantages of opportunities offered by public authority, gathering education proportionally to the expenses made by the state in this sector, then the model shows that there is a possibility for increasing the stock of trust and thus maximizing output by reducing the transaction costs. Respecting the four optimization conditions, a, b, c and d, regarding the increase of the judicial funds, the expenditure with education and with those activities that enhance the civic culture and the equitable income redistribution, determines the increase the general level of welfare.

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Note

1.   Economies in which the growth is based on investments. The term comes from the Solow's model, from which all the endogenous growth theories derive.