A MULTI-DIMENSIONAL APPROACH TO THE FINANCIAL INCLUSION IN EU COUNTRIES

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Abstract: *The topic of financial inclusion has gained increased attention, on the background of international frameworks and policies devoted to inclusive societies, inclusive financial systems, sustainable and inclusive growth. However, existing literature and practice lack a generally accepted, reliable and easy to interpret quantitative measure of financial inclusion. The novelty of our paper relies on developing a financial inclusion index, comprising an updated set of indicators which account for current developments of the financial industry and the continuous diversification and complementarity of financial products people have access to. It is the first study comprising all the 28 EU countries and covering a large, recent time horizon (2008-2013). The index has been computed for each year considered and a ranking has been provided to comparatively assess the evolution of a given country on the financial inclusion scale. Our findings revealed that one-third of EU countries show moderate financial inclusion, while the remaining ones depict low financial inclusion, with different degrees of severity. A constant presence at the bottom limit of financial inclusion, in each of the six years, has been Romania. This result reflects a reality, namely the lack of official concern from authorities and financial institutions in respect of monitoring, measuring and stimulating financial inclusion. We believe that the index proposed in this paper could act not only for assessing the degree of inclusion at a given moment of time, but also as a tool for monitoring and signaling the imperative*

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involvement of regulators, financial institutions and civil society in designing and implementing policies and programs for enhancing inclusive financial products.

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***JEL Classification**: C43, G21*

Introduction

Our empirical approach is the result of worldwide concerns and efforts, expressed by authorities, academia and civil society towards increasing the degree of financial inclusion or, in other words, mitigating financial exclusion from basic financial products and services. There is a certain consensus in terms of defining vulnerable social groups, such as the unemployed, low-paid individuals, young people without higher education, retired people, people with disabilities, disadvantaged families, refugees or migrants. Studies (Lämmermann, 2010) show that higher incidence of using financial services increases individuals' ability to start a new business, to absorb financial shocks and to manage risks, with long term benefits as regards employment, poverty alleviation, economic growth and living standard. It is one of the reasons why regulators have included financial inclusion on their agenda, as a priority on their way towards financial systems' development.

Although financial inclusion plays an important role in ensuring individuals' wellbeing, being a component of the wider social inclusion phenomenon, in practice there is no comprehensive measure that can be used to accurately quantify the extent of financial inclusion across countries, but rather scarce and incomplete attempts (Cámara and Tuesta, 2014).

Due to the lack of uniform criteria and methodologies for measuring banking exclusion, there are important differences in this regard, as most of the existing studies employ questionnaire techniques. At European level, several surveys indicate that a small part of population is affected by financial exclusion, namely: 2-10% are excluded from financial industry, 4-10% have no access to credit facilities; 3-10% have no savings accounts. In terms of the degree of financial exclusion across countries, they can be grouped as follows: countries showing a low level of exclusion, below 3% (Belgium, Denmark, France, Luxembourg, Netherlands, Sweden), a medium level of 3-8% (Austria, Finland, Germany, Spain, Slovenia, UK), a medium to high level between 12-28% (Cyprus, Greece, Estonia, Italy, Ireland, Malta, Portugal, Slovakia) and levels above 34% in Hungary, Lithuania, Latvia and Poland.

A notable incentive related to unitarily measuring financial inclusion across countries pertains to the World Bank, which launched in 2011 the Global Financial Inclusion (Global Findex) database. It comprises over 100 indicators obtained by interviewing respondents in over 140 countries around the world, on issues related to saving, borrowing, making payments and managing risks. It's most recent release (Demirguc-Kunt *et al*., 2014) indicated that unbaked people represent 38% of the global population of which 4% claiming they don't need financial products; 58% of the women hold an account compared to 65% of the men.

Our paper aims to fill the existing gap in academic literature and practice, by developing an index of financial inclusion. It will act as a tool for assessing the actual positioning of countries in the financial inclusion hierarchy and for monitoring the progress made every year by a given country. In addition, it will provide authorities with an intuitive, easy to understand signal on the need for enhanced policies and actions focused on promoting financial inclusion.

It has to be mentioned that a previous attempt in this regard was undertaken by Sarma (2008), who developed an index based on three dimensions of inclusive financial systems, namely banking penetration (the proxy indicator employed a share in the total population), availability of the banking services (the number of bank branches per 1000 population) and usage of the banking system (the volume of credit and deposit as a share in the country's GDP).The author performed the study on 55 worldwide countries, at only one moment in time (the year 2004).

The novelty proposed by our paper relies in expanding the set of indicators used for computing the index, in order to account for current developments of the financial industry and the continuous diversification and complementarity of financial products people have access to. In addition, the paper empirically investigates the statistical significance and direction of the relationship between this new financial index and education expenses or GDP.

Our paper brings value by considering all the 28 European Union countries, the index being recomputed for each year of the 2004 – 2014 time frame. This allowed us to build a ranking, for each year considered, and comparatively observe how a given country positioned itself in the hierarchy, whether it has made steps towards increased financial inclusion and evolved towards the upper bound, or on the contrary, it involutes or records a relative steady path.

The remaining of the paper has the following structure: first section briefly discusses financial inclusion/exclusion features and stages; Section 2 presents several incentives implemented by national authorities and financial institutions to promote financial inclusion in developed and emerging countries; Section 3 reviews the findings of several

studies on financial inclusion, as a determinant of economic growth; Section 4 illustrates the methodology employed for aggregating our five indicators into a single measure and computing the index and presents the results obtained, by ranking the countries by the values ofthe index. Section 5 presents some concluding remarks.

1. Conceptual approach

The financial exclusion was clearly perceived at the beginning of the '90s, on the background of population's low access to basic banking products and services. Until present it hadn't emerged a precise definition of this phenomenon. It is widely agreed that a person is excluded from the banking system if he/she doesn't possess any banking product or has a restricted access to banking products or services, which negatively affects its ability to participate at the economic and social life.

The opposite of financial exclusion is financial inclusion, which can be broadly described as reflecting one's ability to access and use the financial services provided by the market. Sarma (2008, p.3) defines financial inclusion "as a process that ensures the ease of access, availability and usage of the formal financial system for all members of an economy". But also some additional questions should be considered, such as: does the exclusion appears in respect of financial products or of financial institutions? How relevant are the levels of financial exclusion? Should the indicators be best computed at individual or household level? What types of financial products should be taken into account when measuring financial exclusion or inclusion? (Gloukoviezoff, 2004)

Two decades ago, in a report issued by the World Bank (Kempson and Anderloni, 2007, p. 4) they identified four typologies of financial products to be included in the financial exclusion analyses: banking transactions, savings, loans and insurance. As regards of insurance, some recent studies argue that they shouldn't be taken into account when speaking about exclusion/inclusion, as they follow a different supply and demand mechanism. Also, in terms of savings, the problem of exclusion has to follow a distinct approach, as not holding a savings account doesn't necessarily indicate a state of financial exclusion. The lack of a savings account might suggest the preference for liquidity or for other type of placement, such as private pensions or investment funds. Credit exclusion is also important through its multifacetes (features of credits, credit providers, legislation or credit scoring methodologies). Consequently, the definition of financial exclusion/inclusion refers to a basic basket of financial products and services which are different from one country to another, from person to person due to social and economic context.

The common denominator of financial exclusion comprises two components: difficulties of access to and difficulties of using financial products, with negative social effects. These components are the result of financial services providers' unadapted practices

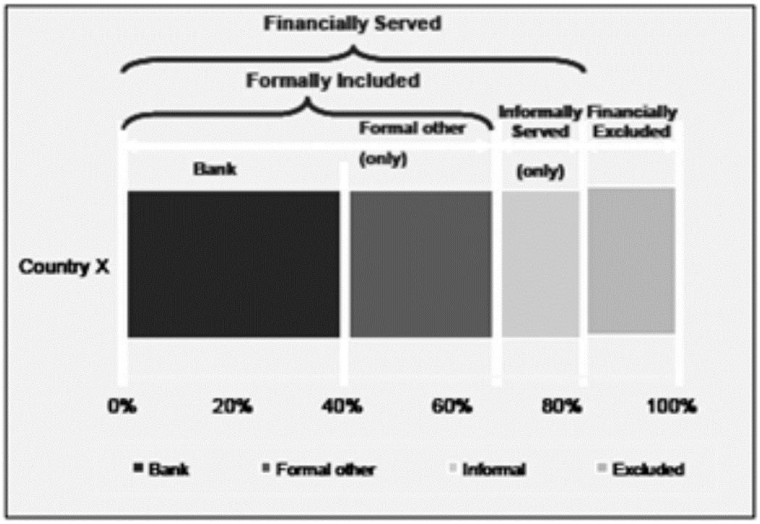
(customers selection criteria; asymmetries of geographical distribution of bank and branches products/services with potential customer's profile as culture, adaptability , financial experiences, etc.).

When assessing the state of financial exclusion, it should be taken too into consideration the customers' voluntarily refusal to use financial products, termed self-exclusion. People often justify their choice by having no need of financial products and services, or on the contrary by a poor quality relationship with the bank, fear of banking products' complexity.

Kempson and Anderloni (2007) identified three stages of financial inclusion, depending on the extent of access to financial products and services, namely: a) unbanked people, representing those that do not use any banking product; b) marginally banked people, characterized by a limited use of banking products and services; c) fully banked, including those with broad access to banking products and services.

The World Bank (2005, p.4) classifies financial inclusion or financially served people into three categories: people formally served by banks, people formally served by other financial service provider and people informally served who have access to financial services from informal providers. Financially excluded individuals are people with no access at all, both voluntarily and involuntarily.

Figure 1. Financial inclusion components



Source: World Bank (2005).

2. Products and institutions that promote financial inclusion in developed and emerging countries

Increasing the degree of financial inclusion is not only a concern of the national and international authorities in emergent or low developed countries, but equally it is a concern of the developed countries.

In the US the measures for increasing financial inclusion consisted in launching in December 2015 a broad program with the purpose of including unbanked households in financial inclusion programs. Data shows that almost 28% of US households are unbanked. As financial inclusion proves to be a problem for vulnerable families, US authorities envisage the implementation of public policies and measures for people's financial health, such as removal of fees attached to ATMs' transactions or deposits for disadvantaged population.

The idea of sustainable economic growth in tight relationship with financial inclusion is strongly supported by the governor of India's central bank. It is his belief that in order to increase the degree of financial products penetration both clear regulations and flexibility are necessary. It is outlined that universal access to banking facilities is a side of financial inclusion and that the role of new technologies becomes increasingly important. India is the only country in the world having set up a Council for Development and Financial Stability with a clear mandate for financial inclusion.

In 2009 set up an incentive, called Banking on Change, and implemented in eleven African countries. It is a partnership between banks, non-government organizations and private sector meant to improve people's living conditions, to gain financial skills and to remove the barriers to the poor people's access to financial products and services. An innovative measure is the creation of a savings group, which enables individuals to group and save money collectively. This will result in higher deposit amounts than individual saving would allow. The conclusion is simple: poor people too have the capacity to save or to repay a loan, if proper mechanisms and products are designed and adapted to their needs.

A recent measure for raising awareness on the fight against banking exclusion is represented by the Manifesto for Banking Inclusion in France, launched in 2011 by the French Red Cross, Secours Catholique and the National Union of Social Action Community Centres. The Manifesto reveals negative social consequences of banking exclusion. It envisages the creation of a public Institute whose mission is to collect and analyze data, in order to better know current banking practices, analyze the range of difficulties encountered by individuals in terms of usage or access, stimulate the educational role of banking system, accountability of debtors and creditors.

Large banks also have become concerned on this topical challenge. Barclays believes that banks show the highest potential for strengthening financial inclusion, in addition to the actions undertaken by charities or microfinancing organizations.

BNP Paribas has been committed for almost a decade to promoting equalit opportunities and to fighting against financial and social exclusion. It has developed and implemented several actions related to promoting financial education, respect for human rights or helping financially or socially vulnerable people. The bank provides the program Gamme de Paiement Alternatif, for the population facing difficult financial problems and the Projet Banlieues which supports local community incentives, startups and youth financial education.

3. Macroeconomic implications for financial inclusion

Financial services access and usage by population and companies is expected to exert positive effects on economic growth, diminish poverty and improve people's living conditions. On this background, regulatory authorities have raised questions related to macroeconomic effects generated by financial inclusion.

The study of Sahay, Cihak, Ndiaye, Barajas, Mitra, Kyobe, Mooi andYousefi (2015) examines the link between financial inclusion and economic growth, economic and financial stability. According to them, there is a positive relationship between financial inclusion and economic growth, a sustained economic growth being a reliable precursor of higher financial inclusion. Empirical evidence also suggests that financial instability increases when credit access is not properly supervised, while countries witnessing strong financial supervisory practices might achieve increased and sound financial inclusion. Another finding is that inequalities in income or wealth distribution generate low financial inclusion.

Assuming that excluding a large part of the population from banking products is an obstacle to economic growth, Hariharan and Marktanner (2012) estimated, by using a Solow Growth Model, the impact of financial inclusion on economic growth. The results indicated that an increase by 10% of the financial inclusion had the potential to generate an increase of incomes by 1.34%. In addition, financial inclusion is robustly and significantly correlated with productivity and capital formation capacity.

Mehrotra and Yetma (2015) analyzed 130 countries and found that consumption volatility is lower in countries with high financial inclusion, being measured by number of bank accounts. Some microeconomic and sociologic issues show that women's access to financial products is beneficial, in general, to society as family's wellbeing depends on women's financial inclusion.

Onaolapo (2015) investigated the effects of financial inclusion on economic growth over three decades and signaled that regulatory bodies should formulate policies to encourage financial intermediation among poor people.

Park and Mercado (2015) have tested the impact of financial inclusion on poverty and income inequality. Their findings indicated that financial inclusion diminishes the levels of the two variables considered.

4. Financial inclusion index – Data and methodology

Using the methodology proposed by Sarma (2008), which relies on computing the distance between various components, we attempt to create an index of financial inclusion. The index comprises 5 variables, each of them acting as a proxy for a given dimension of financial inclusion: i) *number of ATMs per 100.000 adults;* ii) *number of bank branches per 100.000 adults* which show banking units' regional penetration, in order to facilitate the meeting of banking products demand and supply (high values of these indicators indicating higher financial inclusion); iii) *loans' interest rates*, as determinants of banking products demand, with direct impact on financial inclusion; iv) *the share of private pension fund assets in GDP*, to indicate the degree of penetration of private pensions in each of the 28 EU countries; v) *the share of gross written premiums for general insurance in GDP*, in each EU country. The last two indicators are specific to the non-bank financial markets.

Data have been collected from several databases, such as: the World Bank (Global Findex available at *www.worldbank.org/en/programs/globalfindex* and Enterprise Survey available at *www.enterprisesurveys.org/*), the International Monetary Fund (Financial Access Survey, available at *http://fas.imf.org/Default.aspx*), the European Central Bank and EU central banks' websites. The financial inclusion index will be computed for each EU country, over a time period from 2008 - 2013.

Assuming that each EU country might be evaluated as regards financial inclusion through *n* characteristics, an *n*-dimensional vector $C_i = (x_{i1}, x_{i2} \dots x_{in})$ can be defined, where i=1, 2,...*m* and *m* is the number of countries in the sample, in our case 28.

Consequently, there can be built the column vectors $Char_j = \begin{pmatrix} x_{1j} \\ \cdots \\ x_{mj} \end{pmatrix}$, where i=1, .., *n*, which will be used further for computing the distances $d_{ij} = \frac{x_{ij} - min_j}{max_j - min_j}$.

These distances will lie at the core of the creation of the financial inclusion index for a given country *j*, based on the formula:

$$I_j = 1 - \frac{\sqrt{(1-d_{1j})^2+(1-d_{2j})^2+\cdots+(1-d_{nj})^2}}{\sqrt{n}}$$

It should be mentioned that, to construct the index, one should be aware of the theoretical relationships established between each of the five variables and the concept of financial inclusion. Four variables (*number of ATMs per 100.000 adults, number of bank branches per 100.000 adults*, *the share of pension fund assets in GDP*, *the share of gross written premiums for general insurance in GDP)* depict a relationship of direct dependence, while *loans' interest rates* show a negative relationship with financial inclusion, as higher interest rates are susceptible to inhibit financial inclusion. Therefore, to ensure the consistency of index computation, for this particular variable it will be considered the distance d_{i5} and not the value of 1- d_{i5} as in the above mentioned formula.

The values of the index range between 0 and 1, higher values indicating increased financial inclusion. According to Sarma (2008), a value of the index below 0.3 corresponds to low financial inclusion, a value between 0.3 and 0.5 suggests a moderate state while values above 0.5 indicate increasing financial inclusion.

Table 1 illustrates the hierarchy of EU countries, in each of the six year considered, and based on the values recorded by their financial inclusion index.

By using the same benchmarks as Sarma (2008), the results obtained revealed that each year a number of maximum 11 countries recorded values of the index exceeding the bottom limit of 0.3, while no country shows a level of financial inclusion above the 0.5 threshold. Also, in countries characterized by a moderate level of financial inclusion are operating major financial centers, such as France, Germany, Luxembourg and UK. Thus, it is justified the need that international financial institutions continue their incentives on the way towards consolidating the degree of financial inclusion, as a manner to improve life quality and economic growth.

Some countries: Cyprus, Portugal and Spain are constantly on top. It should be mentioned that these countries are significant economic problems in considered period faced. Its regards the moderate financial inclusion level recorded, their banking systems are characterized by a high penetration in the economy which caused the vulnerability of domestic financial system during the financial crisis.

Northern countries, such as Estonia, Finland, Latvia, Lithuania and Sweden are low-ranked, mainly due to low levels of some components of the index (number of ATMs per 100.000 adults, number of bank branches per 100.000 adults). In major economies in the EU, represented by Germany and France, the level of financial inclusion is determined mainly by bank-specific indicators (number of bank branches per 100.000 adults in the case of Germany and reduced share of private pension funds' assets in GDP in the case of France).

Table 1. Financial inclusion index for EU countries (2008 -2013)

No.	2008		2009		2010		2011		2012		2013	
	Country	Index value	Country	Index value	Country	Index value	Country	Index value	Country	Index value	Country	Index value
1	Luxembourg	0.4708	Luxembourg	0.4615	Luxembourg	0.4599	Luxembourg	0.4611	UK	0.4328	UK	0.4340
2	Spain	0.4417	UK	0.4289	UK	0.4371	UK	0.4326	Spain	0.4122	Spain	0.3878
3	UK	0.4340	Spain	0.4233	Spain	0.4270	Spain	0.4270	Luxembourg	0.3531	Luxembourg	0.3463
4	Portugal	0.3987	Portugal	0.3849	Portugal	0.3859	Cyprus	0.3777	Cyprus	0.3516	Portugal	0.3398
5	Denmark	0.3884	Cyprus	0.3680	Cyprus	0.3749	Portugal	0.3728	Portugal	0.3406	Cyprus	0.3185
6	Cyprus	0.3781	Denmark	0.3641	Denmark	0.3625	Denmark	0.3560	Denmark	0.3273	Italy	0.3138
7	Netherlands	0.3590	Netherlands	0.3490	Netherlands	0.3404	Italy	0.3290	Netherlands	0.3237	Belgium	0.3082
8	Italy	0.3294	Ireland	0.3391	Italy	0.3260	Netherlands	0.3224	Italy	0.3201	Netherlands	0.3072
9	Ireland	0.3270	Italy	0.3329	Ireland	0.3180	Slovenia	0.3056	Slovenia	0.3134	Denmark	0.3031
10	France	0.3021	Italy	0.2954	Slovenia	0.3081	Belgium	0.3041	Belgium	0.3117	Italy	0.2984
11	Slovenia	0.2920	Slovenia	0.2938	Italy	0.2971	Italy	0.2976	Italy	0.3020	Slovenia	0.2929
12	Bulgaria	0.2864	Bulgaria	0.2863	Belgium	0.2826	Ireland	0.2819	Ireland	0.2795	Ireland	0.2671
13	Belgium	0.2748	Belgium	0.2619	Germany	0.2652	Germany	0.2552	Austria	0.2642	Austria	0.2670
14	Germany	0.2590	Germany	0.2582	Bulgaria	0.2613	Austria	0.2519	Germany	0.2504	Germany	0.2569
15	Austria	0.2467	Finland	0.2401	Austria	0.2482	Finland	0.2321	Bulgaria	0.2385	Bulgaria	0.2354
16	Finland	0.2346	Austria	0.2380	Finland	0.2474	Bulgaria	0.2288	Croatia	0.2306	Finland	0.2244
17	Croatia	0.2339	Croatia	0.2282	Croatia	0.2276	Croatia	0.2284	Finland	0.2241	Croatia	0.2209
18	Greece	0.2220	Greece	0.2131	Greece	0.2183	Malta	0.2035	Malta	0.2074	Malta	0.2066
19	Estonia	0.2147	Estonia	0.1940	Malta	0.1958	Greece	0.2013	Greece	0.1953	Slovakia	0.1798
20	Malta	0.1913	Malta	0.1930	Estonia	0.1880	Latvia	0.1795	Slovakia	0.1789	Czech Republic	0.1761
21	Poland	0.1810	Poland	0.1749	Poland	0.1776	Estonia	0.1760	Latvia	0.1763	Lithuania	0.1671
22	Slovakia	0.1809	Slovakia	0.1718	Slovakia	0.1767	Slovakia	0.1759	Estonia	0.1750	Greece	0.1657
23	Czech Republic	0.1689	Czech Republic	0.1652	Lithuania	0.1674	Poland	0.1719	Czech Republic	0.1709	Sweden	0.1640
24	Sweden	0.1646	Sweden	0.1648	Sweden	0.1672	Czech Republic	0.1628	Poland	0.1680	Poland	0.1636
25	Latvia	0.1621	Lithuania	0.1567	Czech Republic	0.1660	Sweden	0.1620	Lithuania	0.1649	Estonia	0.1619
26	Lithuania	0.1609	Hungary	0.1404	Latvia	0.1606	Lithuania	0.1513	Sweden	0.1633	Latvia	0.1575
27	Hungary	0.1481	Latvia	0.1122	Hungary	0.1556	Hungary	0.1085	Hungary	0.0906	Hungary	0.1167
28	**Romania**	**0.0722**	**Romania**	**0.0780**	**Romania**	**0.0796**	**Romania**	**0.0844**	**Romania**	**0.0860**	**Romania**	**0.0776**

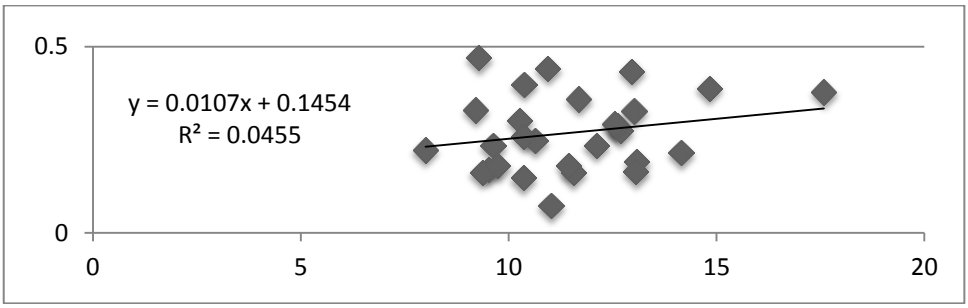
Source: own computation.

As regards Romania, its degree of financial inclusion constantly recorded the lowest levels in the EU, between minimum 0.0722 (in 2008) and maximum 0.0860 (in 2012). Although it grew, the growth was negligible, mainly due to the accelerated growth of the weight of pension funds' assets in GDP. A study conducted of the Romanian Banking Association revealed that the low level recorded by financial inclusion is mainly caused by a weak financial education. Only 20% of the total population actively gets informed about banks and banking products. Four out of 10 Romanians are familiar with cards and only 52% use debit cards not only for withdrawing money, but also for making payments. The financial behavior in choosing a particular financial product seems quite arbitrary, as 4 out of 10 individuals do compare several offers before acquiring a banking product. Surprisingly, 43% of population do not currently hold and do not envisage to use a banking product (card, current or savings account, loan, internet banking). In addition, over 45% of the population declares they don't know the basic banking products' features. The main channels for getting financial information are TV shows on financial issues and interpersonal discussions (40%) followed by newspapers. These findings outline the imperative need for publicly disseminating transparent, high

quality financial information and for implementing incentives devoted to financial education.

Assuming that educated people are more prone to use financial productswe further investigated the existing link between the values of the financial index and the expenses on education as a share in total government expenses. We employed data on education expenses collected from the World Bank, for the 2008-2011 period (World Development Indicators database, available at *http://data.worldbank.org/data-catalog/world-development-indicators*). We have graphically plotted the two indicators (see figures 2, 3, 4 and 5) and obtained regressions with positive slope, but low R-squared level.

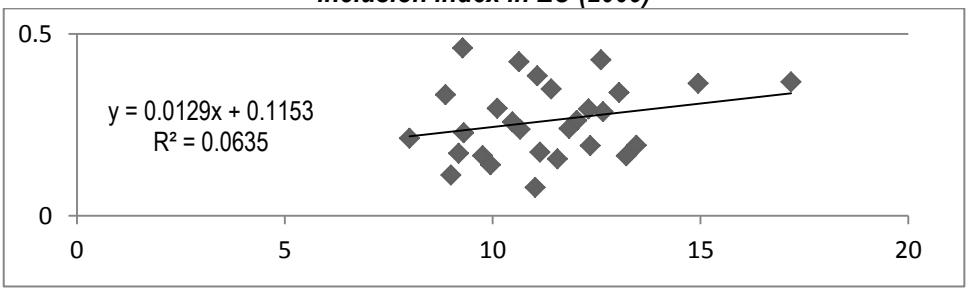
Figure 2. Positive relationship between education expenses and financial inclusion index in EU (2008)



Source: own computations.

For 2009 data the graphical analysis indicated a positive relationship between the two indicators. However, the coefficients are not statistically significant and R-squared value is low, the dependent variable being explained by only 6.35% of the explanatory variable.

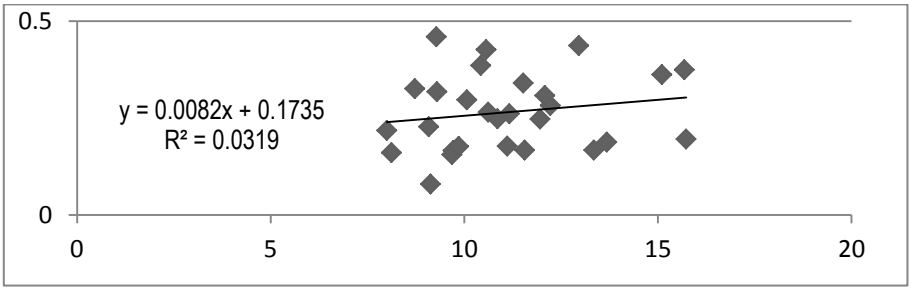
Figure 3. Positive relationship between education expenses and financial inclusion index in EU (2009)



Source: own computations.

In 2010 the linear relation between the two time series persists, although the coefficients are not statistically significant and R-squared value compressed until 3.19%. Nevertheless, the slope is still positive, suggesting the presence of a direct relationship between education expenses and financial inclusion index.

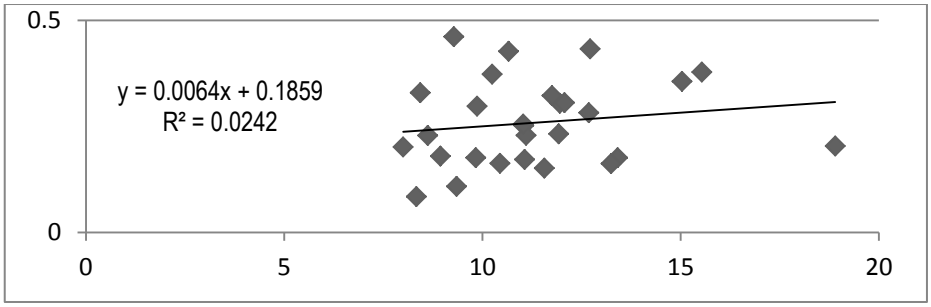
Figure 4. Positive relationship between education expenses and financial inclusion index in EU (2010)



Source: own computations.

The positive relationship maintained also in 2011, indicating that an increase of education expenses determines the increase of financial inclusion. However, it is not the main driver of financial inclusion evolution, as the value of R-squared is of only 2.42% which suggests that 2.42% of the dependent variable variation is explained by the independent variable, represented by educational expenses as percent of government expenses.

Figure 5. Positive relationship between education expenses and financial inclusion index in EU (2011)



Source: own computations.

To investigate the presence of a potential linear relationship between the financial inclusion index and economic growth, expressed as GDP per capita, it has been employed the GMM (Generalized Method of Moments) for panel data. The dependent variable is GDP per capita and the explanatory variables are previous levels of the dependent variable and the financial index computed above. As table 2 illustrates, the regression indicates all coefficients are statistically significant. Interestingly, there is a negative link between financial inclusion and GDP per capita dynamics.

Table 2. Relationship between GDP per capita and financial inclusion index

Dependent Variable: GDP_CAP
Method: Panel Generalized Method of Moments
Transformation: First Differences
Total panel (balanced) observations: 84
White period instrument weighting matrix
White period standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP_CAP(-1)	-0.100729	0.052681	-1.912036	0.0594
GDP_CAP(-2)	-0.218694	0.034402	-6.357035	0.0000
INDEX	-0.699987	0.202979	-3.448562	0.0009

Cross-section fixed (first differences)

Mean dependent var	-0.004196	S.D. dependent var	0.022346
S.E. of regression	0.023247	Sum squared resid	0.043775
J-statistic	8.303563	Instrument rank	10

Source: own computation.

This result, which diverges from the one obtained by other researchers (positive relationship) is determined mainly by restricting the analysis to the financial turmoil period (2008-2013). Our data characterize a unique time frame, represented by a global financial crisis of unprecedented severity. As a result, turbulences on international financial markets induced direct effects on the economies of the 28 EU countries that have affected the process of financial inclusion strengthening. The negative relationship is also determined by the volatile evolution of GDP during this period, characterized by major declines in 2009 and 2010, followed by a fragile rebound in the remainder years.

Conclusions

Our paper focuses on the need for an evolving financial system in terms of institutional reforms and access to financial services. More international organizations and national bank regulators get involved in enhancing financial inclusion, by making it one of their priorities, formulating strategies and undertaking actions. At EU-level banking products' degree of penetration is relative heterogeneous. For a financial product to become large-scale accessible and affordable, it is necessary to be particular, innovative devoted mainly to financially vulnerable people.

By aggregating data collected from multiple sources, on a recent time frame, and following Sarma's (2008) methodology, we have computed an updated financial inclusion index. The index scores range from low to moderate financial inclusion. The findings revealed that Romania witnessed the lowest degree of financial inclusion in the entire EU, in each year considered. Low financial literacy, due to people's precarious financial education signals the imperative need for programs, strategies and policies undertaken by national authorities and financial industry in order to increase the level of basic financial knowledge and find opportunities for sound access to financial products. In our opinion, the measures to be taken are twofold. First, the civil society (through non-governmental organizations and charities) should raise awareness and promote incentives related to financial education, as well as put pressure on national authorities in order to place financial inclusion on their priority agenda. Complementarily, the National Bank of Romania in partnership with other national institutions such as the Romanian Banking Association should design and implement national strategies or programs targeted to communities with low financial literacy. In addition, financial institutions might promote, through their social responsibility strategies, actions to help vulnerable people who face difficulties in understanding, using or having access to basic financial products. They should make efforts towards understanding financial exclusion causes and effects, increase the ease of understanding and transparency of their communication with all types of clients, and reshape banking products in order to help customers with low financial capability or who are simply new to banking operations (Banking Partnership Group, 2008).

A second research direction shows the presence of a positive, although statistically insignificant relationship between the level of public expenses with education, as a share of GDP and financial inclusion index. Another empirical investigation identified a negative, but highly statistically significant relationship between financial inclusion and GDP per capita. One explanation might be that in uncertain times, dominated by major imbalances, theoretical, intuitive relationships between some variables do not hold.

These findings represent a starting point for deepening relations between financial inclusion and major macroeconomic indicators (such as GDP). The approach in question, however, is hampered by the low number of available data (including time series with a small number of records), although international organizations have made progress in collecting data on this topic.

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