

CONSTRUCTION OF A FINANCIAL INCLUSION INDEX FOR THE MEMBER AND CANDIDATE COUNTRIES OF THE EUROPEAN UNION

AVRUPA BİRLİĞİ ÜYE VE ADAY ÜLKELERİ İÇİN BİR FİNANSAL KAPSAYICILIK İNDEKSİ

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ABSTRACT

This paper establishes a multidimensional financial inclusion index, which measures the level of access to financial instruments in the financial system on the basis of the member and candidate countries of the European Union. This kind of an index will allow lawmakers and scholars for comparison among members and candidates of the EU in terms of financial inclusion levels. Further, to measure the explanatory power of the index, panel data analysis was made by using the Fixed Effects Panel Model. With this analysis, interaction between specific macro-economic factors was also measured along with access to financial instruments. According to the study results; EU member countries have higher levels of access to financial instruments than candidate countries. All study results will be helpful for lawmakers in shaping EU policies within the context of financial inclusion.

Keywords: Financial Inclusion, Financial Inclusion Index, Economic Development, EU.

ÖZ

Bu çalışmada, Avrupa Birliği üye ve aday ülkeleri bazında, finansal sistemde finansal araçlara ulaşım oranını ölçen çok boyutlu finansal kapsayıcılık indeksi oluşturulmuştur. Bu tarz bir indeks, kanun yapıcılara ve araştırmacılara AB üye ve aday ülkelerinin finansal kapsayıcılık düzeylerini karşılaştırma imkanı sunacaktır. Ayrıca, oluşturulan indeksin açıklayıcılığının ölçülmesi amacıyla Sabit Etkiler Modeli kullanılarak panel veri analizi yapılmıştır. Bu analizle birlikte finansal araçlara ulaşım ile spesifik makro ekonomik faktörler arasındaki etkileşim de ölçülmüştür. Çalışmanın sonuçlarına göre; AB üye ülkesi aday ülkelere göre daha yüksek finansal araçlara ulaşım oranlarına sahiptir. Çalışma ile bulunan tüm sonuçlar, kanun yapıcılar için AB politikalarının finansal kapsayıcılık bağlamında şekillenmesine yardımcı olacaktır.

Anahtar Kelimeler: Finansal Kapsayıcılık, Finansal Kapsayıcılık İndeksi, Ekonomik Kalkınma, AB.

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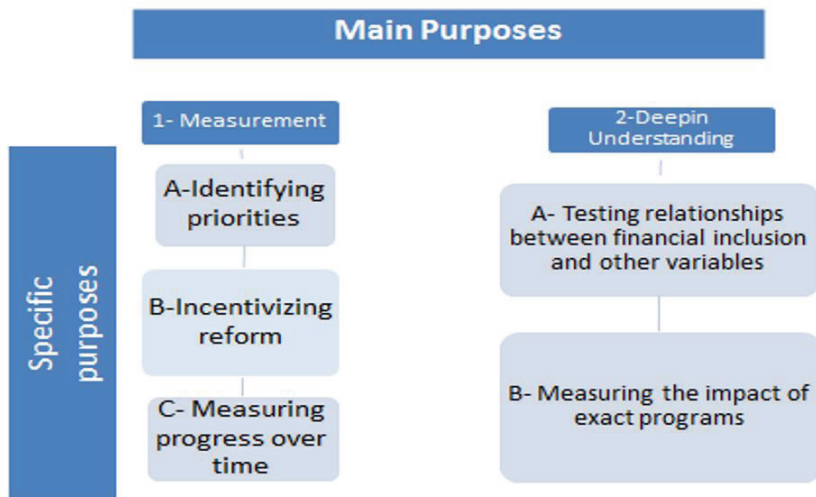
INTRODUCTION

Recently, it has been argued that financial inclusion may effect financial development growth and poverty reduction. Policy choices as improving financial services access contributes on poor's living standards (Hannig and Jansen, 2010). Many poor people live without using formal financial intermediaries. Thus, the lack of access to financial services prevents them to make future decisions and leads to an inefficient use of resources.

There is a growing consensus on the importance of strong financial systems as a policy objective in the world. New institutions and even legislations have set up for financial inclusion. For instance, the Community Reinvestment Act (1997) "requires banks to offer credit throughout their entire area and prohibits them from targeting only the rich neighborhoods in the U.S" (Consultative Group to Assist the Poor & World Bank, 2010). This legislation contributed more access to financial services. However, some arguments suggest that this legislation also contributed to the financial crisis in 2007-2008 (Consultative Group to Assist the Poor & World Bank, 2010). Hence, it can be concluded that there might be a cost of financial inclusion and it is vital to consider these effects for economies.

Moreover, the legislation on exclusion draws attention on the importance of having bank accounts freely in 1998, in France. Similarly, the U.K government in 2005 established 'The Financial Inclusion Task Force', which underlines the importance of financial inclusion development. Other EU countries have also established such legislations to achieve strong financial systems. For instance, the Consumer Protection Act (1979) in Austria; Banking Act (1993), Insurance Act (1958), Law on Business Practices, and Consumer Protection (1991) in Belgium; and finally, Customer Protection Act (2007) in Croatia are the examples of these regulations (Consultative Group to Assist the Poor & World Bank, 2010).

Figure 1: Measurement of Financial Inclusion



Source: Porteous (2009).

There are two important part of measuring financial inclusion: “measuring and monitoring levels of financial inclusion, and deepening understanding about factors that correlated with financial inclusion and subsequently, the impact of policies”. These objectives have some specific sub-sections (Hannig and Jansen, 2010). As presented in Figure 1, measurement and deepening understanding are considered as the main purposes of measuring the extent of financial inclusion. Other factors such as measuring progress over time, identifying priorities, and testing the relationships between financial inclusion and other country specific variables are considered as specific factors. Following the common theory in the literature, this paper measures the extent of financial inclusion across countries over time and tests the associations between financial inclusion and some specific country factors.

The main contribution of this paper is to explore a multidimensional financial inclusion index for EU countries. This index can be able to be a source for lawmakers to explore the picture of financial system. Following Sarma’s (2008) method, this paper explores a multidimensional financial inclusion index for the EU countries. The index contains disparate measures of financial inclusion and presents these measures as a single number. Other contribution of this paper is exploring the time series version of financial inclusion.

This paper empirically examines two different analyses for financial inclusion. In the first part of the paper, a multidimensional index is constructed for the European Union member and candidate countries for the period 2004 through 2010. Second part includes an empirical model, which explores the association between financial inclusion and economic development by using some set of country specific macro economic factors for the same period. In doing so, we attempt to identify these factors that can be associated with financial inclusion such as GDP per capita, adult literacy rates, people who live in rural populations, unemployment rates, GINI coefficients and human development indexes.

1. EXISTING LITERATURE

Recently, researchers mostly focus on financial access and achieving inclusive financial systems rather than complete financial sector development. Hence, financial inclusion gained more importance as a policy tool. In the meantime, financial stability is still an important policy goal and should be considered to encourage increased financial access for people (Hannig and Jansen, 2010).

Similar to this paper, there are other financial inclusion index studies in the literature, such as Chakravarty and Pal's (2010) 'An Axiomatic Approach'. Similarly, Arora (2010) used more dimensions and indicators to measure the index for 2008, which was the first study that used a great number of indicators. Moreover, Gupte et al. (2012) argued that using as many dimensions as possible makes the index more indicative and comprehensive. Moreover, Yorulmaz (2013) constructed a financial inclusion index for the provinces of Turkey. They found that financial access levels of the provinces are in line with their Human Development Index levels.

The financial exclusion literature mostly contains primary survey analysis within a country or region. For instance, Solo and Manroth (2006) in the Colombia; Siedman and Tescher (2004) in the U.S; Corr (2006) in the Ireland; Collard et al. (2001) in the U.K; Djankov et al. (2008) in the Mexico; and European Commission (2008) in the European Union are the examples of such studies. Moreover, Beck et al. (2007) analysed outreach of financial access and objectives of financial sectors. They used some set of financial access indicators and explored the objectives of these indicators separately.

There are limited studies examined the link between financial inclusion and such factors. Barr (2004), Kempson and Whyley (1998), and Connolly and

Hajaj (2001) concluded that low-income groups are generally lack of access to financial services, while high-income countries have fair financial access levels. Furthermore, Leyshon and Thrift (1995), and Kempson and Whyley (2001) found that people that live in rural areas mostly financially excluded. Similarly, Buckland et al. (2005), and Kempson and Whyley (1998) showed that countries that have low-income inequality levels have high levels of financial access.

2. DATA AND METHODOLOGY

2.1. Construction of the Index of Financial Inclusion

The index of financial inclusion measures the inclusiveness of the financial sector of an economy. In this section, data of the European Union member and candidate countries from 2004 through 2010 are included during the construction of the index. In doing so, a multidimensional index that contains several features of financial inclusion is used: banking penetration, availability of banking services and usage of the banking system. For each observation, the index yields a number between 0 and 1, where 0 implies "complete" financial exclusion and 1 implies "complete" financial inclusion.

The number of bank accounts per 1000 population measure is used for accessibility, which is also the penetration of the banking system. For the availability dimension, we use the number of ATMs per 1000 people with the number of bank branches per 1000 people to measure the dimension. After calculating two separate indexes for bank branches and ATMs, we considered a weighted average of these two indexes using 1/3rd weight for ATM and 2/3rd weight for bank branch as the index for the availability dimension (Sarma and Pais, 2008). For the usage dimension, we used the volume of credit plus deposit relative to the (GDP). Next, we used the same formula to compute the index of each dimension.

$$d_i = \frac{(A_i - m_i)}{(M_i - m_i)} \quad (1)$$

where, A_i is the actual value of dimension i , M_i is the 90th quantile value of dimension i , and m_i implies the minimum value of dimension which is used as 0 in this paper.

After considering these three dimensions, we can identify the country i by a point (p_i, a_i, u_i) in the three dimensional Cartesian space. The IFI is measured by the normalized inverse Euclidean distance of the point (p_i, a_i, u_i) from the ideal point $(1, 1, 1)$ (Sarma, 2008):

$$IFI = 1 - \frac{\sqrt{(1-pi)^2 + (1-ai)^2 + (1-ui)^2}}{\sqrt{3}} \quad (2)$$

2.1.1. Data for the Indicators of the Index

As aforementioned, the availability of data is the fundamental challenge for computing such an index. We have collected data from various sources for each dimension for the years 2004 to 2010. The World Banks' 'World Development Indicators (2011)' and International Monetary Fund's (IMF) 'International Financial Statistics (IFS)' were used to collect the data for the components of the index. For the banking penetration dimension we use data on 'Bank Deposit Accounts' from 'World Development Indicators (2011)'.

Nowadays, service suppliers started to use electronic and/or virtual systems using Internet and mobile banking. These kind of indicators have become more important to explore the levels of financial services access and inclusiveness of the while system, especially in developed countries. However, difficulties of collecting such data stand as a detrimental factor for such studies. Thus, we use the current data to construct our index.

This data include deposit accounts, checking and savings for individuals and others. For the availability dimension, we have used the data on IMF's 'International Financial Statistics (IFS)' Financial Access Survey database, which includes Geographical Access. The number of ATMs and bank branches per 1000 adult was also taken from this data set. Finally, for the usage dimension, the data are from the IMF's International Financial Statistics and Financial Access Survey database and World Banks' World Development Indicators (2011) were used for the volumes of deposit and credit relative to GDP for these countries for the relevant years.

2.2. Socio-economic Factors Associated with Financial Inclusion

After computing the index of financial inclusion, we identify macro level factors that are associated with financial inclusion. In doing so, we use a regression model where we regress the IFI (financial inclusion index) on a set of socio-economic factors, such as GDP per capita, adult literacy, unemployment, rural population rate, GINI coefficient, and human development index.

Since the dataset has both country and time dimension, which means panel data; we use a fixed effect model in this paper. In the regression equation, as in

Sarma and Pais (2008), the dependent variable is the logit transformation of the financial inclusion index (lifi). We transformed the index into logit form because while IFI lies between 0 and 1, the transformed variable lies between $-\infty$ and ∞ , thus new transformed variables allow us to use the classical Ordinary Least Squares regression (Sarma, 2008). This transformed variable is a monotonically increasing function of the index, which also preserves the same ordering as the index.

$$Y = \ln \left(\frac{\text{IFI}}{1-\text{IFI}} \right) \quad (3)$$

Further, the equation for the fixed effects model is;

$$Y_{it} = \beta_0 + \beta' X_{it} + \alpha_i + \varepsilon_{it} \quad (4)$$

where, α_i ($i=1 \dots n$) is the unknown intercept for each entity (n entity-specific intercepts), Y_{it} is the dependent variable (LIFI) where i = entity and t = time, and X_{it} represents independent variables, β' are the matrix of the coefficients for the independent variables, and finally, ε_{it} is the error term. The rate of change in Y_{it} with respect to a unit change in variable X_{it} is given by the derivative of Y_{it} with respect to X_i . The dependent variable is the logit transformed from the IFI. The independent variables are GDP per capita, adult literacy, unemployment, rural population rate, GINI coefficient, and human development index.

2.2.1. Data for the Socio-economic Factors Associated with Financial Inclusion

The control variables are from several sources: The World Bank's 'World Development Indicators (2011)', International Monetary Fund's (IMF) 'International Financial Statistics (IFS)', Eurostat of 'European Commission', and 'International Human Development Indicators' from United Nations Development Programme (UNDP) databases for the relevant years. World Development Indicators database was used for GDP per capita (in 2000 constant USD). Eurostat and World Development Indicators were used for adult literacy rates for the population 15 and above.

Similarly, World Development Indicators (2011) database has been used for the rural population as a percentage of total population; GINI coefficients, which indicate income inequality and unemployment rates. Finally, for the Human Development Index we have used the 'International Human Development Indicators' database from United Nations Development Programme (UNDP). Table 1 shows all the variables that are used in the empirical model.

Table 1: Summary Statistics of IFI vs. Socio-Economic Variables Data

Variable	Mean	Std. Dev.	Min	Max
Logit transf. of IFI	0.247	0.790	-1.470	2.390
Log(GDP) per capita	9.357	0.910	7.456	10.940
Unemployment	9.123	6.071	1.014	37.25
Rural-population	28.972	12.128	2.6	52
Rural pop_square	985.833	652.790	6.759	2704
GINI coefficient	0.304	0.0512	0.227	0.483
ln(HDI) values	-0.186	0.070	-0.40	-0.095
Observation:	N = 224	n = 32	T = 7	

3. EMPIRICAL RESULTS

3.1. The Results of the Construction of the Index

Countries are explored as follows depending on their IFI values: From 0 to 0.3 considered low financial inclusion, from 0.3 to 0.5 considered medium financial inclusion, and from 0.5 to 1 considered high financial inclusion in this index (Sarma, 2008). As seen in Table 2, Luxemburg has the highest IFI value during these years except 2004; Belgium has the highest IFI value on that year. On the other end of the spectrum, Montenegro has the lowest rank of IFI at most of the years during these periods. There is a general tendency for the IFI index to increase over time for all countries. Thus, the number of countries that are in the high IFI category increases over time, while the number of countries in the low IFI category tends to decrease.

For instance, there are twenty-three countries in this category, in 2010, while there were sixteen countries in the high level IFI category, in 2004. Similarly, while there were four countries (Turkey, Romania, Macedonia, and Montenegro) in the low level IFI category in 2004, whereas none of these countries placed in this category, in 2010. These countries happen to be candidates of the European Union (except Romania until after 2007). Additionally, the medium level IFI category varies across the years. Thus, there were twelve countries in this category, in 2004, while there were only nine in 2010. The IFI values that we compute across the European countries appear to be consistent with other studies and other measures.

As a comparison with the results of the European Commission's financial exclusion study for 25 countries in 2008 (European Commission 2008) which is based on surveys of individuals aged 18 and over (Eurobarometer Survey), with a few exceptions, the results are similar with this report. This study reported that 1 percent of adults in Luxemburg, Belgium and Netherlands, 2 percent in Denmark,

France and Sweden, 3 percent in Austria and Germany, 6 percent in Slovenia, 18 percent in Cyprus (South Cyprus), and 28 percent in Greece, and the highest rank with the 48 percent are financially excluded.

Table 2: Index of Financial Inclusion (IFI) for EU, 2004-2010

Country	2004	2005	2006	2007	2008	2009	2010
Austria	0.663	0.651	0.630	0.639	0.656	0.682	0.692
Belgium	0.899	0.871	0.849	0.843	0.855	0.858	0.901
Bulgaria	0.432	0.448	0.465	0.505	0.525	0.564	0.580
Croatia	0.421	0.432	0.437	0.455	0.479	0.505	0.542
Cyprus (South)	0.673	0.671	0.703	0.731	0.723	0.717	0.730
Czech Republic	0.371	0.372	0.379	0.388	0.407	0.431	0.449
Denmark	0.840	0.844	0.844	0.836	0.832	0.799	0.786
Estonia	0.480	0.510	0.535	0.554	0.570	0.598	0.594
Finland	0.522	0.520	0.524	0.523	0.529	0.538	0.552
France	0.591	0.601	0.656	0.664	0.678	0.698	0.720
Germany	0.654	0.636	0.608	0.592	0.608	0.638	0.651
Greece	0.624	0.638	0.659	0.699	0.741	0.750	0.777
Hungary	0.324	0.325	0.338	0.359	0.380	0.396	0.406
Iceland	0.542	0.565	0.555	0.558	0.540	0.524	0.536
Ireland	0.508	0.523	0.534	0.551	0.563	0.573	0.577
Italy	0.492	0.508	0.515	0.552	0.562	0.592	0.631
Latvia	0.401	0.414	0.444	0.472	0.477	0.511	0.520
Lithuania	0.324	0.360	0.389	0.413	0.424	0.458	0.461
Luxembourg	0.884	0.896	0.895	0.910	0.915	0.915	0.916
Macedonia	0.207	0.224	0.258	0.293	0.339	0.356	0.371
Malta	0.682	0.696	0.685	0.696	0.708	0.709	0.726
Montenegro	0.187	0.220	0.290	0.399	0.430	0.436	0.437
Netherlands	0.597	0.568	0.561	0.561	0.551	0.570	0.522
Poland	0.358	0.355	0.360	0.370	0.414	0.435	0.429
Portugal	0.746	0.736	0.747	0.749	0.768	0.780	0.781
Romania	0.222	0.241	0.264	0.286	0.322	0.338	0.376
Slovak Rep.	0.317	0.335	0.334	0.341	0.345	0.372	0.405
Slovenia	0.475	0.497	0.508	0.435	0.540	0.576	0.504
Spain	0.552	0.562	0.580	0.617	0.660	0.679	0.705
Sweden	0.475	0.498	0.514	0.544	0.560	0.583	0.611
Turkey	0.275	0.276	0.276	0.281	0.341	0.395	0.492
UK	0.671	0.671	0.673	0.670	0.670	0.665	0.693

Source: Authors Own Calculation

Table 3 examines the ranks of the countries during the period that are considered in this study. According to the Table 3, the candidate countries tend to have lower financial inclusion rates than member countries except Iceland, which is found in the medium financial inclusion category and has better ranks than other member countries in the relevant period. Other three candidate countries

have lower financial inclusion ranks with some exceptions. For instance, Turkey and Montenegro have better ranks than some other member countries in recent years. However, their financial inclusion levels are still lower than most of the member countries. The inferential conclusion can be here; being a member of the EU is effective on the extent of financial access for an economy i.e. there exists an obvious association between becoming a member of the EU and the level of financial inclusion. Lawmakers should consider this association in terms of their EU agendas.

Table 3: The Ranks of the Financial Inclusion Index for EU, 2004-2010

Country	2004	2005	2006	2007	2008	2009	2010
Austria	8	8	10	10	11	9	11
Belgium	1	2	2	2	2	2	2
Bulgaria	21	21	21	20	21	19	16
Croatia	22	22	23	22	22	23	19
Cyprus	6	6	5	5	6	6	6
Czech Republic	24	24	25	26	27	27	26
Denmark	3	3	3	3	3	3	3
Estonia	18	17	15	15	13	13	15
Finland	15	16	17	19	20	20	18
France	12	11	9	9	8	8	8
Germany	9	10	11	12	12	12	12
Greece	10	9	8	6	5	5	5
Hungary	26	28	27	28	28	28	29
Iceland	14	13	14	14	18	21	20
Ireland	16	15	16	17	14	17	17
Italy	17	18	18	16	15	14	13
Latvia	23	23	22	21	23	22	22
Lithuania	27	25	24	24	25	24	25
Luxembourg	2	1	1	1	1	1	1
Macedonia	31	31	32	30	31	31	32
Malta	5	5	6	7	7	7	7
Montenegro	32	32	29	25	24	25	27
Netherlands	11	12	13	13	17	18	21
Poland	25	26	26	27	26	26	28
Portugal	4	4	4	4	4	4	4
Romania	30	30	31	31	32	32	31
Slovak Republic	28	27	28	29	29	30	30
Slovenia	19	20	20	23	19	16	23
Spain	13	14	12	11	10	10	9
Sweden	20	19	19	18	16	15	14
Turkey	29	29	30	32	30	29	24
UK	7	7	7	8	9	11	10

3.2. The Results of the Analysis of Socio-economic Factors Associated with Financial Inclusion

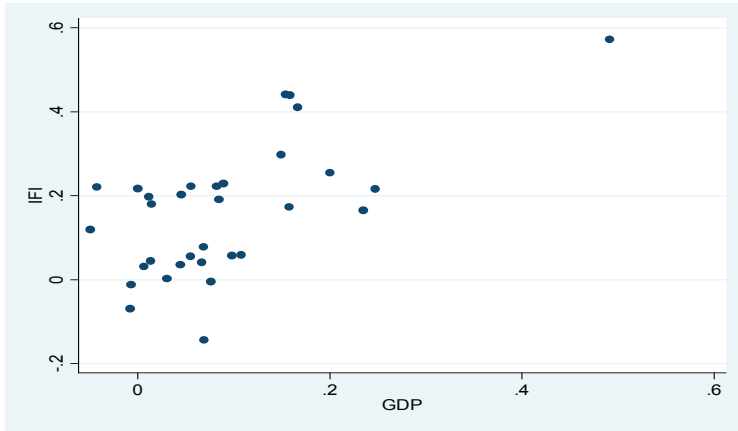
In this model, we identify the socio-economic factors that affect financial inclusion for the period 2004 through 2010 for the European Union members and candidate countries. There are twenty-seven members and five candidate countries in the EU. The members are Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and United Kingdom. The candidate countries are Croatia (which became a member on 30/06/2013), Iceland, Macedonia, Montenegro, and Turkey. For these sets of countries we regress the transformation of the IFI index on the set of socio-economic variables including income, unemployment, income inequality, the rural population as a proportion of total population, and the Human Development Index. In addition, correlation of these variables with financial inclusion has been represented in Table 4. Further, Figure 2 explores the association between financial inclusion and change in GDP during the period 2004 to 2010.

Table 4: Correlations of the Socio-economic Variables

	c1	c2	c3	c4	c5	c6
ln(GDP) per capita	0.712***					
unemployment rate	-0.414***	-0.571***				
ruralpopulation	-0.550*	-0.512*	0.265*			
Ruralpopulation_sqr	-0.504**	-0.483**	0.222**	0.968**		
ginicoeff	-0.338**	-0.551**	0.426**	0.271**	0.207**	
ln(hdi) values	0.569***	0.856***	-0.536***	-0.419***	-0.387***	-0.677***

N=224 , n= 32 , T=7
 ***p<0.01 , *p<0.10

Figure 2: Change in IFI and Change in GDP for the Years 2004 to 2010 for EU



As seen in Table 5, we run three different regression equations to find the best model results in this paper. Model specification (1) includes rural population only model, while model specification (2) includes quadratic form of rural population. In the mean time, model specification (3) includes all indicators at the same time. However, using quadratic and normal forms of the rural population might cause multicollinearity problem. Apart from this situation, the results of model specifications (1) and (2) are close to each other.

In the Fixed Effect model, nearly all of the control variables are statistically significant (at the levels of 0.01 and 0.05) in all regression equations. The estimates of rho suggest that almost all the variation in *lifi* (logit transformed financial inclusion index rates) is related to cross-country differences on financial inclusion index rates (99.1% of the variance is due to differences across panels). Besides, The highest R^2 for the regression is 0.98. The F test of the following regressions indicates that there are significant cross-country effects, implying that pooled OLS would be inappropriate.

In all regressions equations, Human Development Index has positive and highly significant correlation coefficient with financial inclusion. We used logarithmic form of HDI in the regression model for better significance level. We can conclude that the HDI explains financial inclusion well, and it seems to be the primary objective to clarify financial inclusion. Human Development, which contains, "literacy, education, and standards of living for countries worldwide and the measure of life expectancy", is the best fit to explain financial inclusion in

the model. This result has the same direction with Sarma and Pais (2008). We conclude that higher the human development index, higher is the IFI measure.

Table 5: Results of Regression IFI on Socio-Economic Variables

The dependent variable is “financial inclusion index” in all regression equations. Regression equations are explored in the methodology section above. We use the financial inclusion index as the proxy of banking access in this table. Robust Standard Errors are clustered by country. Country and year fixed effects are added into the regression equations. ***, **, and * show significance levels at 1, 5, 10 % respectively.

Dependent Variable	Financial Inclusion Index		
	(1)	(2)	(3)
Ln (GDP) per capita	0.912*** (0.061)	0.654*** (0.342)	1.428*** (0.261)
Unemployment rate	-0.124*** (0.106)	-0.132*** (0.345)	-0.024*** (0.006)
Rural-population	0.423** (0.005)		0.115* (0.065)
Rural pop_square		-0.232** (0.099)	-0.002** (0.001)
GINI	-0.124** (0.012)	-0.086** (0.342)	-1.078** (0.512)
Ln (HDI) values	0.234*** (0.145)	1.032*** -1.009	8.084*** (1.149)
Constant	-1.456*** (0.523)	-2.843*** (0.824)	-12.839*** (2.823)
R-squared	0.875	0.985	0.973
Number of Observations	224	224	224

GDP per capita has a positively and highly significant correlation with the financial inclusion. This result is economically expected as other evidence suggests. Thus, we can conclude that the higher the income level, for individual and country levels, the higher the financial inclusion. Unemployment is found negatively and statistically related with financial inclusion. The unemployed and irregularly employed populations seem less likely to participate into the financial system. Moreover, Gini Coefficient is also found negatively and statistically significantly related with financial inclusion. Hence, it can be suggested that income inequality is negatively related with the levels of financial access. The results suggest that high levels of inequality lowers the levels of financial access.

Moreover, rural population is found positively and statistically significantly related with financial inclusion. We found this outcome using the quadratic form of this variable in the model. In doing so, we found a negative relationship between rural population and financial inclusion. Hence, we can suggest that by going to rural parts of the country, financial inclusion levels tend to decrease.

CONCLUSION

The results suggest that member countries have relatively higher financial inclusion rates than candidate countries except Iceland, which has higher rates than more member countries during the period. The inferential outcome here is that membership of the EU matters for financial inclusion. We also find evidence at the macroeconomic level that a broader financial system enhances economic growth. This study shows that the level of human development and income are key factors for explaining the level of financial inclusion in an economy. Moreover, we find that the higher the employment rate, higher is the financial inclusion. This paper also concludes that a higher income inequality is more likely to lead to a higher financial exclusion.

As further studies, adding new indicators into the construction process can extend the measures of financial inclusion index. As discussed before, developed countries mostly turned to use technological systems such as mobile banking. Hence, using such services started to bring more importance on measuring the inclusiveness of financial systems. However, it is still too hard to find such data to use in the measurement of financial access. The multidimensional index in this paper can be used to compare the extent of financial access across countries. Similarly, this index can be used to monitor the policy agenda's on financial inclusion. Finally, this index might be used to explore the impacts of financial access on other macro economic factors such as financial development and poverty.

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