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Ozili, Peterson K

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Social inclusion and financial inclusion: international evidence

Peterson K. Ozili

Abstract

This paper investigates the association between social inclusion and financial inclusion. Social inclusion and financial inclusion are two major development policy agenda in many countries, and the association between them has received little attention in the policy and academic literature. Using correlation analysis, the findings reveal a positive and significant correlation between social inclusion and financial inclusion for Asian countries, Middle Eastern countries and African countries while the correlation between social inclusion and financial inclusion is negative for European countries. The findings also show that European and Asian economies experience higher levels of social inclusion and account ownership in a formal financial institution while African countries and Middle Eastern countries experience lower levels of social inclusion and account ownership. The implication of the findings is that some socially inclusive societies tend to enjoy greater financial inclusion while other socially inclusive societies may experience lower financial inclusion. The study provides insights for researchers, decision makers, and practitioners to understand the association between financial and social inclusion.

Keyword: financial inclusion, social inclusion, sustainability, access to finance, account ownership

JEL Code: G00, G21, O16.

1. Introduction

Social inclusion and financial inclusion are two development agenda to improve the socio-economic wellbeing of all individuals in society (O'Connor, 2005; Chibba, 2009). Policy makers in advanced economies have made policy commitments to promote financial inclusion and social inclusion (Long, 2010; Allen et al., 2016; Ozili, 2018). Other countries are yet to make social and financial inclusion a major policy objective due to their focus on other urgent economic needs in the country. When a government becomes interested in promoting financial and social inclusion, three issues come up: concerns that policy makers will seek to achieve financial inclusion at the expense of social inclusion; concerns that policy makers may strive to achieve social inclusion at the expense of financial inclusion; and concerns that even when policy makers choose to achieve both objectives together, there might be insufficient funding to finance the financial inclusion program in the country and there might be strong resistance to social inclusion from social groups that already benefit from the existing social exclusion in society.

One way to address these three issues is to first identify the association or correlation between financial inclusion and social inclusion. This can provide some insight to understand why socially inclusive societies tend to have similar or dissimilar financial system characteristics (Ozili, 2019), and it can also shed some light to understand why financially inclusive countries tend to have similar or dissimilar social integration characteristics. Motivated by these concerns, I examine the association between financial inclusion and social inclusion using correlation analyses, to identify whether the association between financial and social inclusion is complementary or contrasting.

Using correlation analyses allow us to explicitly focus on the association between these two factors while isolating the endogeneity problems commonly associated with using regression estimation to test the causal relationship between two or more social-economic factors. The findings reveal that there is a positive and significant correlation between social inclusion and financial inclusion particularly for African countries, middle eastern countries and Asian countries but not for European countries. This study contributes to the literature in the following way. Firstly, it contributes to the literature that examine the cross country determinants of financial inclusion (see Sarma and Pais, 2011; Mindra et al, 2017; Tuesta et al 2015; Ozili, 2020a). The findings suggest that the level of social inclusion might influence the level of financial inclusion. Secondly, this study contributes to the literature that examine the effect of social inclusion for economic development (see Buvinić et al, 2004; Helmsing and Vellema, 2012). The findings show that some regions tend to experience higher levels of social inclusions than other regions.

The rest of the paper is divided into four sections. Section 2 presents the literature review. Section 3 presents the data and methodology. Section 4 provides main results. Section 5 concludes.

2. Literature review

2.1. Social inclusion

Social inclusion is the process of ensuring that all members of society have equal access to the same opportunities (Oxoby, 2009; Martin and Cobigo, 2011; Silver, 2010). Social inclusion policies and institutions are interventions that promote full participation in society by all members of society (Collins, 2003), by eliminating the barriers that prevent individuals from fully participating in society in a meaningful way (Percy-Smith, 2000; Marston and Dee, 2015). Some barriers or factors affecting the rate of social inclusion include: the different interpretation of social inclusion (Littlewood et al, 2017), lack of funds to finance social enterprises development (Biancone and Radwan, 2018), lack of community enterprises (Barraket and Archer, 2010) and a weak social inclusion model in several countries (Daly, 2008). Several indicators of social inclusion have been identified in the policy and academic literature such as gender equality, equity in the use of public resources, building human resources, social protection, discrimination, environmental sustainability and social technology (see., World bank, 2014; Warschauer, 2004; Griessler and Littig, 2005), and there is currently no consensus in the literature on which social inclusion indicators reflect the actual social inclusion level in a country (Atkinson et al, 2004).

In recent times, gender equality, environmental sustainability and social protection have become the mainstream social inclusion indicators in the social policy setting (Alexander, 2010). Ozili (2019) show that the three mainstream causes of social activism are gender equality advocacy, environmental sustainability advocacy and social protection advocacy. Ozili (2019) argue that it is common these days to see individuals and organised groups protesting¹ against corporations in these three areas, and such activism if successful can compel corporations to change their behavior, requiring corporations to develop new strategies to deal with the impact of social activism on their business operations or business interests. This suggest that social activists can compel corporations to change their policies, and make them commit substantial financial resources to become more socially inclusive in the areas of gender equality, environmental sustainability and social protection for the benefit of society. Here are some real-life examples of how gender equality, environmental sustainability and social protection advocacy are becoming the mainstream social inclusion benchmark for society in recent years. On the 14th of June in 2019, thousands of Swiss women walked out of their jobs to protest gender inequality in the workplace in Switzerland.² Women marched on the streets to protest the increasing gender pay gap that exist between men and women in the workplace. In Chile, women protested against gender violence and gender inequality on the 18th of October in 2019³, they were fighting for greater social protection for women and for greater representation of women in government and in the work place. In London, dozens of students, parents, teachers and professionals joined a Friday protest to compel British lawmakers to more boldly address

¹ In the financial services industry, for instance, social activists may protest CEO excessive bonuses, the excessive fees charged by fat-cat analysts, the under-representation of women in senior management positions, the widening gender pay gap, customer data sharing, environmental pollution, and may protest the high interest rates charged to risky borrowers who are members of a sensitive (and poor) ethnic minority group, etc (Ozili, 2019).

² <https://www.vox.com/world/2019/6/14/18679308/switzerland-women-strike-equal-pay-protests>

³ <https://www.dailymail.co.uk/news/article-7741227/Female-protesters-dressed-red-masks-march-demonstration-against-gender-violence.html>

dangerous air pollution in Lewisham (a borough in South London) on the 17th of June in 2019.⁴ There is also evidence that poorly targeted social protection schemes with unclear selection criteria can generate conflict and threaten social cohesion if community members perceive that the allocation of resources is unfair; in fact, the inaccurate selection process of who should receive social protection and who should not receive social protection can cause frustration and can trigger protests and violence (see Pavanello et al, 2016; Kidd, Gelders and Bailey-Athias, 2017).

Moreover, the dominance of these three indicators of social inclusion in mainstream public life does not make them the best indicators of social inclusion. In fact, these three measures maybe criticized for being too narrow compared to other broader indicators of social inclusion such as equal voting opportunities (Bevelander and Pendakur, 2011), social skills development (Smoot, 2004), social technology (Warschauer, 2004; Hick, 2006), creating recreation spaces (Donnelly and Coakley, 2002), and participating in a social economy (Noya and Clarence, 2008). However, the reason for focusing on the three measures in this study (gender equality, environmental sustainability and social protection) is mainly because they are a recurring issue in modern public life, and because data is available for these social inclusion indicators, compared to the broader measures of social inclusion for which data is scarcely available.

2.2. Financial inclusion

Financial inclusion is the process of ensuring that all individuals have access to basic financial services through their participation in the formal financial sector (Ozili, 2018). Proponents of financial inclusion argue that financial inclusion can improve the welfare of poor people and low income individuals in developing countries (see Chibba, 2009; Allen et al, 2016; Ozili, 2018). One merit of financial inclusion is that it can increase the number of account ownership and increase access to credit for individuals so that people can have money to spend on consumption, savings, education and health care for their families (Allen et al, 2016). Jain (2019) and Ozili (2018) points out that public and private sector partnership is needed to achieve full financial inclusion while Allen et al (2016) argue that policies should be designed to reduce barriers to financial inclusion which can expand the pool of eligible account users and encourage existing account holders to use their accounts with greater frequency and for the purpose of saving. Many factors can hinder financial inclusion in a country such as technological failure (Balasubramanian et al, 2018), high cost of account opening (Allen et al, 2016), huge transaction costs in financial intermediation (Ozili, 2018), politicizing the national financial inclusion strategy (Polillo, 2011), and voluntary financial exclusion (Ozili, 2018), among others. However, some factors can promote financial inclusion such as: proximity to a microfinance institution (Brown et al, 2015), the level of education, income and age (Tuesta et al, 2015), financial literacy (Grohmann et al, 2018, Ozili, 2020a&b), financial innovation (Yawe and Prabhu, 2015; Shen et al, 2019), institutional regulation (Chen and Divanbeigi, 2019), and regulatory support for the development and growth of social enterprises (Wilson, 2012).

2.3. Relationship between financial and social inclusion

Policies for financial inclusion can contribute to social inclusion. Financial inclusion can improve access to finance for all members of society through the provision of micro-credit as a social policy to reduce poverty (Mader, 2015), the liberalization of credit to households (Lavinias, 2018) and through financial innovation such as digital finance and crypto-currencies to all individuals (Clarke and Tooker, 2018). On the other

⁴ <https://www.ecowatch.com/air-pollution-crisis-extinction-rebellion-2638891387.html?rebelltitem=3#rebelltitem3>

hand, social inclusion policies can contribute to financial inclusion by establishing social enterprises or institutions that promote gender equality, anti-discrimination and environmental sustainability so that access to, and the delivery of, financial products and services to the poor and low-income individuals is not influenced by social discrimination, gender inequality and other bias in society. Wilson (2012) argue that regulatory support for the development and growth of social enterprises is needed, and can have positive effects for financial inclusion. To date, the relationship between social inclusion and financial inclusion has not been given much attention particularly from a cross-country or regional perspective.

2.4. The trade-off between financial and social inclusion

Financial inclusion (and exclusion) has a high degree of overlap with social inclusion (and exclusion). Understanding the factors that hold people back socially is important in understanding why people are often reluctant to use formal financial services. From a sociological perspective, high levels of social inclusion in a society will lead to increased trust among members of the society which can also increase people's trust in financial institutions and the financial services they offer. In such societies, individuals will be willing to use formal financial services and will encourage others to use formal financial services because of increased trust arising from social inclusiveness. On the other hand, low levels of social inclusion in a society can lead to increased distrust among members of the society which can make people unwilling to deal with financial institutions or the financial services they offer, thereby leading to financial exclusion. The above suggests that societal trust is the main driver of the positive association or correlation between social inclusion and financial inclusion.

Another factor that might be driving the correlation between social inclusion and financial inclusion is the financialisation of the economy and society. This is because countries that have a large and dominant financial sector may also have a greater degree of financial inclusion, and social policy might be skewed more heavily towards financial inclusion in general. This is often the case in developed economies. Likewise, in developing countries, social inclusion is often achieved through the means of financial inclusion policies or digital financial inclusion such as mobile phone penetration, increased use of digital finance apps and bank apps, and the emergence of fintech, among others, which is not only promoted by development NGOs and the State, but is also promoted by profit-driven multinational financial institutions.

On the other hand, in financially inclusive societies, individuals both poor and rich individuals may have fears and worries, and these anxieties can make individuals reduce their rate of participation in society, leading to social exclusion (Fraiooli, 2012). This suggest that the supposed positive relationship between social and financial inclusion can be weakened by the inherent anxiety that individuals have in society which affects their financial choices. It is important for policy makers to understand this trade-off that exist between social inclusion and financial inclusion for the formulation of good social and financial inclusion policies. Understanding the relationship between financial and social inclusion can help policymakers to determine the exact level of social inclusion that promotes financial inclusion. Also, policymakers can ensure that the implementation of financial inclusion policies are monitored to ensure that financial inclusion policies not lead to unintended social consequences, that lead to social exclusion.

3. Data and Methodology

3.1. Data

Financial inclusion information was collected from the G-20 financial inclusion indicators of the World Bank. Social inclusion cluster data was also collected from the country policy and institutional assessment (CPIA) indicator of the World bank. During the data aggregation process, it was observed that some countries have social inclusion cluster data but did not have any reported data on financial inclusion while other countries have financial inclusion data but do not have any social inclusion cluster data, only few countries had both. The affected countries were excluded from the sample. Only countries that have data on financial inclusion and social inclusion were included in the final sample. Furthermore, the data for some countries was reported for an insufficient number of years, these countries were also excluded from the sample as well. This gives us a final sample of 48 countries⁵. It was also observed that the data for financial inclusion is reported once in every three-years e.g. the data is reported in 2011, 2014, 2017, etc which leave us with no reported data for the years in-between. To address this, I reasonably assume that each reported financial inclusion data remains the same for the consecutive three years, in other words, it is assumed that the financial inclusion characteristics of each country remain the same up until the next three years. Table 9 reports the average values for each country (see appendix A9).

3.2. Methodology

3.2.1. Variable definition and justification

The level of financial inclusion is measured using the extent of account ownership in a formal financial institution. The extent of account ownership in a formal financial institution measures the percentage of respondents who report having an account (by themselves or together with someone else) at a bank or another type of financial institution or personally using a mobile money service in the past 12 months (Allen et al, 2016). Information for formal account ownership was also collected for different age groups such as the adult population, older population, young population and for the entire population. One weakness of using this measure is that it focusses on individuals owning a formal account while ignoring the fact that such accounts can become inactive or dormant for a long time. It also does not take into account that one individual or organization can own multiple accounts, and this can introduce bias when using the extent of formal account ownership as a measure of financial inclusion. However, one major merit of using formal account ownership as a measure of financial inclusion is that it recognizes that owning an account is the most basic step to gain access to a wide range of formal financial services such as credit facilities, savings and investment products. Many studies have used the 'extent of formal account ownership' to capture the rate of financial inclusion across countries (for example, Allen, et al, 2016 and Chibba, 2009; Aguila et al, 2016). Accordingly, formal account ownership is also used to measure financial inclusion in this study.

The level of social inclusion is measured using the social inclusion and equity policy cluster variable. It measures the quality of the policies formulated to promote social inclusion in the areas of gender equality, equity of public resource use, building human resources, social protection and labor, and policies and

⁵ See: Appendix A2. The countries are: Afghanistan, Angola, Armenia, Bangladesh, Benin, Bolivia, Bosnia and Herzegovina, Burkina Faso, Burundi, Cambodia, Cameroon, Chad, Congo Dem. Rep, Congo, Rep, Georgia, Ghana, Guinea, Haiti, Honduras, India, Kenya, Kosovo, Kyrgyz Republic, Madagascar, Malawi, Mali, Mauritania, Moldova, Mongolia, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Rwanda, Senegal, Sierra Leone, Sri Lanka, Sudan, Tajikistan, Tanzania, Togo, Uganda, Uzbekistan, Vietnam, Yemen Republic, Zambia and Zimbabwe

institutions for environmental sustainability (Ozili, 2019).⁶ The cluster variable is derived as the average of all the component variables, and the cluster variable is rated between 1 (low) to 6 (high), where a high value indicates that the country has strong policies that promote social inclusion and equity while a low value indicates that the country has weak or poor policies that promote social inclusion and equity. One major merit of using the social inclusion and equity cluster variable as a measure of social inclusion is that it takes into account a wide set of social inclusion indicators such as gender equality, equity of public resource use, building human resources, social protection, labor, environmental sustainability policies and institutions. Some studies have used the social inclusion cluster variable to measure the rate of social inclusion across countries (for example, Balamoune-Lutz, 2009; Ozili, 2019). Accordingly, the social inclusion cluster variable is also used to measure financial inclusion in this study.

3.2.2. Measuring financial and social exclusion

The financial inclusion indicator is represented by the ‘AC’ vector variable while the social inclusion indicator is represented by the ‘SIC’ variable. The AC vector variable consist of four variables: AC1, AC2, AC3 and AC4. The AC1 variable represents formal account ownership by the entire population (aged 15+). The AC2 variable represents formal account ownership by the older population (aged 60+). The AC3 variable represents formal account ownership by the young population (aged 15-34). The AC4 variable represents formal account ownership by the adult population (aged 35-59). See Appendix A1 for variable description. The SIC variable is the social inclusion cluster variable that measures the quality of the institutions and policies for social inclusion and equity in a country. The social inclusion cluster includes gender equality, equity of public resource use, building human resources, social protection and labor, and environmental sustainability policies and institutions.

3.2.3. Estimation method

The methodology employed to analyze the association between financial inclusion and social inclusion is the Pearson correlation method. Pearson correlation measures the strength of the association between two variables (Gujarati, 2009). It is important to note that Pearson correlation does not measure the causal relationship between financial inclusion and social inclusion, rather it measures the strength of the association between the two variables.

4. Correlation Results

The statistical correlation between social inclusion and financial inclusion variables are presented and discussed in this section.

4.1. Full sample correlation

In the full sample correlation, the SIC coefficient is strongly significant and positively correlated with AC1, AC2, AC3 and AC4 in Table 1. This indicates that greater social inclusion is significantly associated with greater financial inclusion in all the population age-groups (the full sample). This implies that countries with high levels of social inclusion experience greater financial inclusion in all the population age-groups.

⁶ <https://datacatalog.worldbank.org/cpia-policies-social-inclusion-equity-cluster-average-1low-6high-1>

Table 1: Full Sample: Pearson Correlation

Correlation	AC1	AC2	AC3	AC4	SIC
AC1	1.000				
AC2	0.905*** 0.000	1.000			
AC3	0.988*** 0.000	0.851*** 0.000	1.000		
AC4	0.982*** 0.000	0.893*** 0.000	0.954*** 0.000	1.000	
SIC	0.349*** 0.000	0.257*** 0.000	0.354*** 0.000	0.322*** 0.000	1.000

p-value is reported below the correlation coefficient. ***, **, * represent significance level at 1%, 5% and 10%.

4.2. Regional correlation analysis

4.2.1. African countries

The correlation result is reported in Table 2. The SIC coefficient is significant and positively correlated with AC1, AC2, AC3 and AC4. This indicates that higher social inclusion is significantly associated with greater financial inclusion in African countries. This implies that African countries with high levels of social inclusion experience greater financial inclusion.

Table 2: African Countries: Pearson Correlation

Correlation	SIC	AC1	AC2	AC3	AC4
SIC	1.000***				
AC1	0.377*** 0.000	1.000			
AC2	0.211*** 0.009	0.926*** 0.000	1.000		
AC3	0.389*** 0.000	0.991*** 0.000	0.891*** 0.000	1.000	
AC4	0.371*** 0.000	0.976*** 0.000	0.923*** 0.000	0.941*** 0.000	1.000

p-value is reported below the correlation coefficient. ***, **, * represent significance level at 1%, 5% and 10%.

4.2.2. Asian countries

The correlation result is reported in Table 3. The SIC coefficient is significant and positively correlated with AC1, AC2, AC3 & AC4. This indicates that higher social inclusion is significantly associated with greater financial inclusion in Asian countries, and implies that Asian countries with high levels of social inclusion also experience greater financial inclusion.

Table 3: Asian countries: Pearson correlation

Correlation	SIC	AC1	AC2	AC3	AC4
SIC	1.000				
AC1	0.308** 0.029	1.000			
AC2	0.280** 0.048	0.867*** 0.000	1.000		
AC3	0.304** 0.031	0.985*** 0.000	0.783*** 0.000	1.000	
AC4	0.248* 0.082	0.989*** 0.000	0.850*** 0.000	0.968*** 0.000	1.000

p-value is reported below the correlation coefficient. ***, **, * represent significance level at 1%, 5% and 10%.

4.2.3. North American countries

The correlation result is reported in Table 4. The SIC coefficient is not significantly correlated with AC1, A2, AC3 and AC4, and the correlation coefficient is very low. The correlation between SIC and AC1, AC2 and AC3 is positive while the correlation between SIC and AC4 is negative. This suggest that social inclusion is not significantly associated with financial inclusion in North American countries.

Table 4: North American countries: Pearson correlation

Correlation	SIC	AC1	AC2	AC3	AC4
SIC	1.000				
AC1	0.062 0.805	1.000			
AC2	0.004 0.985	0.992 0.000	1.000		
AC3	0.193 0.442	0.950*** 0.000	0.917*** 0.000	1.000	
AC4	-0.239 0.338	0.744*** 0.000	0.792*** 0.000	0.501** 0.034	1.000 ----

p-value is reported below the correlation coefficient. ***, **, * represent significance level at 1%, 5% and 10%.

4.2.4. European countries

The correlation result is reported in Table 5. The SIC coefficient is significant and negatively correlated with AC1, AC2, AC3 and AC4. This indicates that higher social inclusion is significantly associated with lower financial inclusion in European countries. This implies that European countries with high levels of social inclusion experience low levels of financial inclusion. One explanation for the negative correlation might be due to the small number of countries in the European region in our sample. Only few European countries met the sampling criteria for this study.

Table 5: European countries: Pearson correlation

Correlation	SIC	AC1	AC2	AC3	AC4
SIC	1.000				
AC1	-0.791*** 0.000	1.000			
AC2	-0.922*** 0.000	0.876***	1.000		
AC3	-0.643*** 0.009	0.973***	0.791***	1.000	
AC4	-0.768*** 0.001	0.981***	0.801***	0.945***	1.000

p-value is reported below the correlation coefficient. ***, **, * represent significance level at 1%, 5% and 10%.

4.2.5. Middle eastern countries

The correlation result is reported in Table 6. The SIC coefficient is significant and positively correlated with AC1, AC2, AC3 and AC4. This indicates that higher social inclusion is significantly associated with greater financial inclusion in Middle Eastern countries. This implies that Middle Eastern countries with high levels of social inclusion experience greater financial inclusion.

Table 6: Middle Eastern countries: Pearson correlation

Correlation	SIC	AC1	AC2	AC3	AC4
SIC	1.000				
AC1	0.588*** 0.001	1.000			
AC2	0.573*** 0.001	0.942***	1.000		
AC3	0.545*** 0.002	0.987***	0.893***	1.000	
AC4	0.616*** 0.000	0.990***	0.942***	0.958***	1.000

p-value is reported below the correlation coefficient. ***, **, * represent significance level at 1%, 5% and 10%.

4.3. Regional correlation comparison

This section compares the strength and direction of the correlation coefficients for each region in Table 7. The correlation between social inclusion (SIC) and financial inclusion (AC1, AC2, AC3, AC4) is very high for European countries (although negative) compared to other regions. Also, the correlation is moderately high for Middle Eastern countries while the correlation between social inclusion and financial inclusion is low for Asian countries, African countries and North American countries.

Next, I compare the financial inclusion characteristics of each population age-group. In European countries, the correlation between financial and social inclusion is negative for all the population age-group, and the negative correlation is highest in the older population category (AC2). In North American countries, the correlation between financial and social inclusion is positive for AC1, AC2 and AC3 but is negative for AC4. The correlation is highest in the adult population (AC4) category, while the young population age-group category has the highest positive correlation. In Middle Eastern countries, the correlation between financial and social inclusion is positive for all the population age-group, and the positive correlation is highest in the adult population (AC4) and in the full young population age-group categories (AC1). In African countries, the correlation between financial and social inclusion is positive for all the population age-group, and the positive correlation is highest in the full population (AC1) and in the young population age-group categories (AC3). In Asian countries, the correlation between financial and social inclusion is positive for all the population age-group, and the positive correlation is highest in the full population (AC1) and in the young population age-group category (AC3). Overall, the findings suggest that the young and adult population are more likely to enjoy the positive benefits of financial and social inclusion.

Financial Inclusion	Social Inclusion (SIC)					
	Full Sample	Asia	Africa	North America	Europe	Middle East
AC1	0.349*** 0.000	0.308** 0.029	0.377*** 0.000	0.062 0.805	-0.791*** 0.000	0.588*** 0.001
AC2	0.257*** 0.000	0.280** 0.048	0.211*** 0.009	0.004 0.985	-0.922*** 0.000	0.573*** 0.001
AC3	0.354*** 0.000	0.304** 0.031	0.389*** 0.000	0.193 0.442	-0.643*** 0.009	0.545*** 0.002
AC4	0.322*** 0.000	0.248* 0.082	0.371*** 0.000	-0.239 0.338	-0.768*** 0.001	0.616*** 0.000

4.4. Additional Analyses

4.4.1. Regional Average Statistic Comparison

The descriptive statistics by region is presented below while country-specific descriptive statistic is reported in Table 13.

4.4.1.1. Social Inclusion

European and Asian countries have the highest average social inclusion rating of 3.63 and 3.62 while the Middle Eastern and African countries have the lowest the social inclusion rate of 3.16 and 3.31 respectively. This suggest that developed economies have higher social inclusion compared to developing economies.

	Full Sample	Asia	Africa	North America	Europe	Middle East
Mean	3.39	3.62	3.31	3.35	3.63	3.16
Median	3.50	3.70	3.30	3.65	3.60	3.10
Maximum	4.30	4.20	4.30	3.90	4.10	3.80
Minimum	2.40	2.50	2.40	2.60	3.10	2.50
Std. Dev.	0.43	0.37	0.42	0.53	0.35	0.42
Observation	270	50	153	18	15	30

4.4.1.2. Financial Inclusion: Entire Population

Focusing on account ownership by the entire population (aged 15+), European and Asian countries have the highest number of account ownership in a formal financial institution which is above the full sample average. African and Asian countries have a lower number of account ownership which is lower than the sample average while account ownership is much lower in Middle eastern countries

	Full Sample	Asia	Africa	North America	Europe	Middle East
Mean	24.6	29.9	20.4	21.1	39.5	12.9
Median	18.4	28.1	16.6	19.9	46.1	10.1
Maximum	91.8	91.8	74.7	31.5	56.2	40.7
Minimum	1.5	3.7	1.5	14.2	17.8	2.5
Std. Dev.	18.5	22.6	14.4	5.4	16.1	10.8
Observation	288	60	156	18	18	30

4.4.1.3. Financial Inclusion: Older Population

Focusing on account ownership for the older population (aged 60+), European and Asian countries have the highest number of account ownership in a formal financial institution which is above the full sample average. African and Middle Eastern countries have a lower number of account ownership which is lower than the sample average while account ownership is much lower in North American countries for the older population.

	Full Sample	Asia	Africa	North America	Europe	Middle East
Mean	21.3	28.8	16.5	15.9	33.3	16.5
Median	14.7	15.1	11.8	14.8	39.9	12.1
Maximum	89.6	89.6	74.1	27.3	56.2	60.8
Minimum	1.07	2.3	1.07	7.23	8.8	3.8
Std. Dev.	18.9	25.3	14.1	6.20	18.1	16.3
Observation	288	60	156	18	18	30

4.4.1.4. Financial Inclusion: Young Population (AC3)

Focusing on account ownership for the young population (15-34), European and Asian countries have the highest number of account ownership in a formal financial institution which is above the full sample average. African and North American countries have a lower number of account ownership while account ownership is much lower in Middle Eastern countries for the young population

	Full Sample	Asia	Africa	North America	Europe	Middle East
Mean	23.2	28.9	18.8	27.9	38.8	15.8
Median	17.2	15.1	14.8	25.2	42.1	11.3
Maximum	94.2	89.6	74.2	94.2	60.3	49.1
Minimum	1.4	2.3	1.5	2.8	15.6	2.9
Std. Dev.	19.1	25.3	14.7	23.2	16.7	13.3
Observation	288	60	156	60	18	30

4.4.1.5. Financial Inclusion: Adult Population (AC4)

Focusing on account ownership for the adult population (35-59), European and Asian countries have the highest number of account ownership in a formal financial institution which is above the full sample average. African and North American countries have a lower number of account ownership while account ownership is much lower in Middle Eastern countries for the adult population

	Full Sample	Asia	Africa	North America	Europe	Middle East
Mean	27.8	30.7	24.4	24.7	43.4	15.9
Median	22.2	24.01	21.6	22.1	48.9	11.2
Maximum	91.5	91.6	75.5	32.6	63.0	49.1
Minimum	1.6	2.91	1.67	19.8	18.2	2.9
Std. Dev.	18.9	23.01	15.1	5.6	17.7	13.3
Observation	288	60	156	18	18	30

5. Conclusion

This study examined the association between social inclusion and financial inclusion, using correlation analysis and descriptive statistics. The findings reveal that there is a positive and significant correlation between social and financial inclusion particularly for African countries, Middle Eastern countries and Asian countries but not for European countries, implying that there is a positive association between financial inclusion and social inclusion for Asian, Middle Eastern and African countries

One implication of the finding is that the policies and institutions established to promote social inclusion can support the policies designed to promote financial inclusion. Policy makers in the financial inclusion space should therefore consider how social inclusion policies and programs can help to improve the extent of financial inclusion in their countries. Secondly, the findings have shown that the directional correlation between financial and social inclusion varies by population age-group and by regional characteristics; therefore, policy makers in each country should consider how the association between social and financial inclusion might differ among ethnic groups and in small communities.

Future research can investigate whether other types of sustainability policies are correlated with the level of financial inclusion across countries, regions and age-groups. Another study could examine the association between social inclusion and other financial inclusion indicators, apart from the level of account ownership. Finally, future research can also investigate the role of population culture in influencing the extent of social inclusion for population age groups.

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Appendix

A1: Variable description		
Indicator Name	Long definition	Source
Account (% age 15+)	Denotes the percentage of respondents, age 15+, who report having an account (by themselves or together with someone else) at a bank or another type of financial institution or personally using a mobile money service in the past 12 months.	Global Findex database (http://datatopics.worldbank.org/financialinclusion/)
Account (% age 60+)	Denotes the percentage of respondents, age 60+, who report having an account (by themselves or together with someone else) at a bank or another type of financial institution or personally using a mobile money service in the past 12 months.	Global Findex database (http://datatopics.worldbank.org/financialinclusion/)
Account (% ages 15-34)	Denotes the percentage of respondents, ages 15-34, who report having an account (by themselves or together with someone else) at a bank or another type of financial institution or personally using a mobile money service in the past 12 months.	Global Findex database (http://datatopics.worldbank.org/financialinclusion/)
Account (% ages 35-59)	Denotes the percentage of respondents, ages 35-59, who report having an account (by themselves or together with someone else) at a bank or another type of financial institution or personally using a mobile money service in the past 12 months.	Global Findex database (http://datatopics.worldbank.org/financialinclusion/)
CPIA policies for social inclusion/equity cluster average (1=low to 6=high)	The policies for social inclusion and equity cluster includes gender equality, equity of public resource use, building human resources, social protection and labor, and policies and institutions for environmental sustainability.	World Bank Group, CPIA database (http://www.worldbank.org/ida).

Appendix 2

A2: Country by region	
Africa	Zimbabwe, Zambia, Uganda, Togo, Tanzania, Sudan, Rwanda, Senegal, Sierra Leone, Nigeria, Niger, Mauritania, Mali, Malawi, Madagascar, Kenya, Guinea, Ghana, Congo democratic republic, Congo republic, Chad, Cameroun, Burundi, Burkina Faso, Benin and Angola
Middle east	Yemen, Uzbekistan, Tajikistan, Pakistan and Afghanistan
Asia	Vietnam, Sri Lanka, Nepal, Mongolia, Bangladesh, Kyrgyz Republic, India, Georgia, Cambodia and Armenia.
North America	Nicaragua, Honduras and Haiti.
South America	Bolivia
Europe	Moldova, Kosovo, Bosnia and Herzegovina

Appendix 3

A3: Full sample descriptive statistics					
	SIC	AC1	AC2	AC3	AC4
Mean	3.392222	24.60603	21.35021	23.16449	27.83715
Median	3.500000	18.36103	14.72077	17.22184	22.29233
Maximum	4.300000	91.82178	89.62423	94.24189	91.59678
Minimum	2.400000	1.521699	1.070749	1.494714	1.679888
Std. Dev.	0.428595	18.46445	18.96189	19.13250	18.91265
Observations	270	288	288	288	288

Appendix 4. Regional Analysis

A4: African region – regional descriptive statistics					
	SIC	AC1	AC2	AC3	AC4
Mean	3.305229	20.38895	16.49199	18.87046	24.41109
Median	3.300000	16.58072	11.82422	14.87050	21.66267
Maximum	4.300000	74.65783	74.12205	74.18528	75.53209
Minimum	2.400000	1.521699	1.070749	1.494714	1.679888
Std. Dev.	0.416089	14.42103	14.11942	14.68111	15.05479
Observations	153	156	156	156	156

Appendix 5. Regional Analysis: Asian Countries

Asia - regional descriptive statistics					
	SIC	AC1	AC2	AC3	AC4
Mean	3.624000	29.90202	28.87353	27.96189	30.78527
Median	3.700000	28.12976	15.11155	25.22239	24.01243
Maximum	4.200000	91.82178	89.62423	94.24189	91.59678
Minimum	2.500000	3.659712	2.330529	2.826128	2.908560
Std. Dev.	0.365089	22.56475	25.32278	23.22854	23.00778
Observations	50	60	60	60	60

Appendix 6. Regional Analysis: North American countries

North America - regional descriptive statistics					
	SIC	AC1	AC2	AC3	AC4
Mean	3.350000	21.08690	15.91192	20.01941	24.71790
Median	3.650000	19.97537	14.87289	18.22881	22.11807
Maximum	3.900000	31.48636	27.26045	32.03432	32.62874
Minimum	2.600000	14.21833	7.230925	12.34480	19.84103
Std. Dev.	0.527201	5.382743	6.204296	6.238263	5.598345
Observations	18	18	18	18	18

Appendix 7. Regional Analysis: European countries

Europe - regional descriptive statistics					
	SIC	AC1	AC2	AC3	AC4
Mean	3.626667	39.47197	33.33961	38.88543	43.40358
Median	3.600000	46.05655	39.98260	42.10577	48.97777
Maximum	4.100000	56.21161	56.21499	60.37856	63.00029
Minimum	3.100000	17.75575	8.785123	15.62850	18.19479
Std. Dev.	0.347371	16.14682	18.10641	16.73048	17.72102
Observations	15	18	18	18	18

Appendix 8. Regional Analysis: Middle Eastern countries

Middle East - regional descriptive statistics					
	SIC	AC1	AC2	AC3	AC4
Mean	3.163333	12.96250	16.53606	10.69803	15.86402
Median	3.100000	10.13365	12.06255	9.236590	11.28358
Maximum	3.800000	40.71001	60.83910	31.66406	49.12294
Minimum	2.500000	2.534857	3.840010	2.137236	2.990957
Std. Dev.	0.415629	10.82459	16.34113	8.493785	13.30644
Observations	30	30	30	30	30

A9. Full sample Descriptive stats (Mean values)						
#	Countries	SIC	AC1	AC2	AC3	AC4
1	Afghanistan	2.6	9.4	7.8	9.2	10.1
2	Angola	2.7	34.2	25.9	32.3	40.9
3	Armenia	4	17.5	9.8	16.3	21.8
4	Bangladesh	3.5	31.3	32.5	28.9	34.9
5	Benin	3.4	13.5	10.9	9.5	22.3
6	Bolivia	3.72	34.9	24.01	34.2	39.9
7	Bosnia and Herzegovina	3.6	54.4	40.9	56.4	60.9
8	Burkina Faso	3.7	13.8	15.1	11.2	18.8
9	Burundi	3.5	7.1	4.5	7.6	6.8
10	Cambodia	3.4	12.9	6.4	15.4	11.1
11	Cameroon	3.02	13.4	18.3	10.1	18.6
12	Chad	2.5	10.6	8.4	8.5	15.5
13	Congo, Dem. Rep.	2.8	10.5	6.07	9.03	14.6
14	Congo, Rep.	2.9	13.6	13.8	11.2	17.5
15	Georgia	4.1	36.3	76.1	18.5	28.2
16	Ghana	3.9	34.9	25.3	36.1	35.6
17	Guinea	3.1	5.3	4.1	4.2	7.4
18	Haiti	2.6	20.4	15.6	18.1	26.5
19	Honduras	3.7	25.9	21.1	26.9	25.8
20	India	3.7	44.1	43.1	40.1	49.8
21	Kenya	3.7	58.5	48.2	59.8	58.3
22	Kosovo	3.3	46.1	49.3	42.1	48.9
23	Kyrgyz Republic	3.6	11.1	9.7	9.01	14.2
24	Madagascar	3.1	7.04	3.8	6.3	8.7
25	Malawi	3.5	17.3	15.7	15.9	20.8
26	Mali	3.3	14.1	9.7	13.1	17.6
27	Mauritania	3.4	20.2	18.3	17.2	25.1
28	Moldova	4	17.9	9.7	18.1	20.2
29	Mongolia	3.6	84.7	65.3	86.4	86.4
30	Nepal	3.8	29.6	22.9	29.03	30.3
31	Nicaragua	3.7	16.8	11.06	15.01	21.8
32	Niger	3.3	4.1	2.5	4.6	3.6
33	Nigeria	3.4	37.1	28.9	37.7	37.9
34	Pakistan	3.1	11.6	10.7	11.2	12.6
35	Rwanda	4.1	37.4	29.4	33.1	47.4
36	Senegal	3.5	10.6	7.3	8.6	15.3
37	Sierra Leone	3.2	15.4	8.7	12.5	22.8
38	Sri Lanka	3.6	75.6	62.1	80.3	77.9

39	Sudan	2.4	11.1	8.1	10.5	12.8
40	Tajikistan	3.4	6.9	13.5	5.02	9.04
41	Tanzania	3.7	28.5	15.02	29.3	30.9
42	Togo	3.1	14.2	10.9	12.06	19.2
43	Uganda	3.7	32.4	26.5	30.1	39.6
44	Uzbekistan	3.7	31.6	41.2	24.8	39.5
45	Vietnam	4.04	26.1	13.3	32.5	22.9
46	Yemen, Rep.	2.9	5.05	9.2	3.1	7.9
47	Zambia	3.3	28.5	26.1	26.3	32.9
48	Zimbabwe	2.8	36.02	36.5	33.1	42.5