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Financial access and economic development: the moderating role of financial consumer protection

Financial
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Abstract

Purpose – The purpose of this paper is to examine the moderating role of financial consumer protection (FCP) in the access–development nexus.

Design/methodology/approach – The study is based on cross-country data on 102 countries surveyed in the World Bank Global Survey on FCP and Financial Literacy (2013). The White heteroscedasticity adjusted regressions and Two-stage least squares regressions (2SLS) are used for the estimation.

Findings – Interactions between FCP regulations that foster fair treatment, disclosure, dispute resolution and recourse and financial access have positive net effects on economic development. However, there is no sufficient evidence to suggest that interactions between financial access and enforcement and compliance monitoring regulations have a significant effect on economic development.

Practical implications – First, policy makers should continue with efforts aimed at instituting FCP regimes as part of strategies aimed at broadening access to financial services for enhanced economic development. Second, instituting FCP regimes *per se* may not be enough. Policy makers need to consider possible intervening factors such as the provision of adequate resources and supervisory authority, for compliance monitoring and enforcement to achieve the expected positive effect on economic development.

Originality/value – This study extends evidence in the law–finance–growth literature by providing empirical evidence on the effect of legal institution specific to the protection of retail financial consumers on the access–development nexus using a novel data set, the World Bank Global survey on FCP and Financial Literacy (2013).

Keywords Economic development, Financial access, Financial consumer protection

Paper type Research paper

1. Introduction

Recent reports indicate that the financial inclusion efforts instituted by the International Monetary Fund since 2004 are yielding fruits. Rutledge (2010), for instance, reported that before the global financial crisis, about 150m new consumers of financial services join the global market every year. According to the World Bank (2014), the number of financially excluded fell from 2.5bn in 2011 to 2bn in 2014. The World Bank (2013) also reports that from 2005 to 2011 the number of depositors in Bangladesh doubled, adding 16.9m new financial consumers to the financial market. In Peru, 5.2m new depositors were added over the period 2005–2011.

Although efforts are underway to broaden access to financial services, concerns are being raised about financial consumer protection (FCP) – the existence of regulations and mechanisms protecting the consumer from abuse and the ability of the consumer to invoke for his relief these laws and mechanisms where he or she has been abused. These concerns have been aggravated given that the lack of effective disclosure, deceptive advertising by suppliers of financial services and failure to understand financial products have been identified as contributory factors to the subprime mortgage crisis and its attendant bank runs in the USA (Ardic *et al.*, 2011).

Consequently, the Group of 20 (G20) Finance Ministers and Central Bank Governors at their meeting in October 2011 endorsed the High-Level Principles on FCP. In 2012, the World Bank published Good Practices for FCP. Based on this framework, several countries have restructured and continue to restructure their institutions and legislations to ensure effective protection of the financial consumer. In the USA, the Consumer Financial



Protection Bureau (CFPB) has been established following the passage of the U.S.C. (2010), charged with ensuring fairness, transparency, and competition in the financial market. In the UK, the Financial Conduct Authority was created in 2012, charged with market conduct supervision and consumer protection. The European Parliament also issued its Directive 2008/48/EC on credit agreements for consumers which demands, inter alia, the use of a standardised disclosure form and disclosure of annual percentage rate (APR) computed using a harmonised methodology across all European Union member states so that financial consumers can compare offers across various providers. These regulations are expected to enhance financial access and thereby promote economic development via the removal of information asymmetry, institution of fair treatment and provision of avenues for redress, which engender trust.

According to one strand of the literature, FCP enhances access to financial services through its disclosure requirements, which removes information asymmetry and ensures consumers are informed, confident, and, hence, more willing to participate in financial markets thereby enhancing savings mobilisation, access to finance for investment and economic growth (Campbell *et al.*, 2010). Furthermore, its fair treatment provisions prevent the use of abusive practices such as product bundling and tying, which allow providers to price their products above the competition, with the potential of financial exclusion by making financial services expensive (Melecky and Rutledge, 2011; Rutledge, 2010). Similarly, mandatory disclosures under FCP remove information asymmetry by ensuring that consumers have adequate information to evaluate product offers before making choices. The existence of recourse mechanisms also gives consumers confidence to purchase risky financial products, as they know there are avenues for redress in case things go wrong. In line with the agency theory, FCP assures investors that their funds are shielded from expropriation by management, making them more willing to surrender funds to corporations for investment and growth.

On the other hand, critics of FCP regulation such as Evans and Wright (2010) and Wright and Helland (2011) argued that FCP could actually lower access and even lead to complete withdrawal of financial products due to its cost implications. Compliance with FCP may require revisions to human resource systems and marketing materials, establishing complaints, monitoring and customer feedback systems, which involve costs to providers and translate into higher costs of finance beyond the reach of several people, fostering financial exclusion. Furthermore, the existence of FCP regulations may make certain financial products unprofitable, forcing providers to withdraw the provision of those financial products, which inherently deters the introduction and advancement of new, innovative products. As noted by Evans and Wright (2010), the CFPB will increase the cost of borrowing by 1.6 percent and reduce consumer borrowing by 2.1 percent.

These conflicting arguments have questioned the role of FCP in broadening access to financial services and, consequently, the moderating role of FCP in the access–development link. Yet, the existing evidence on the moderating role of legal institutions in the access–growth link is few, mostly based on logic and theoretical postulations backed by little empirical evidence or focused on the legal institutional environment, in general (see Demetriades and Law, 2006; Ergungor, 2008; Law *et al.*, 2013).

Demetriades and Law (2006) were the first to examine the interaction between institutional quality and financial development. Using a linear interaction model based on institutional quality indicators for 72 countries for the period 1978–2000, they tested the hypothesis that the interaction between institutional quality and financial development has a separate positive influence on economic growth over and above the effect of the levels of financial development and institutional quality. They found that financial development has larger effects on economic growth when the financial system is embedded within a sound institutional framework. They also found that financial development is most potent in

middle-income economies, where its effects are particularly large when institutional quality is high. In low-income economies, more finance without sound institutions may not succeed in delivering long-run economic development. In low-income countries, in the absence of sound institutions, higher financial development may not have any effect on long-term development (income level).

Further evidence is provided in a study by Ergungor (2008) who interacted the judicial system with financial development – the flexibility of the judicial system with bank development – and examined the effect on growth to investigate the theory that suggests that in inflexible judicial environments, countries will attain higher growth rates if they have well-developed banking systems because relationships are essential for reputation building, whereas in flexible judicial environments, countries will grow faster when they have well-developed stock markets because entrepreneurs will invest more when they do not have to pay holdup rents to investors. He found in support of these hypotheses that bank-oriented financial systems are correlated with high economic growth in countries with inflexible judicial systems.

Again, Law *et al.* (2013), using an innovative threshold estimation technique, examined whether there exists an institutional quality threshold in the finance–growth relationship. Institutions were measured using the political risk services indicators – rule of law, corruption and bureaucratic quality. These indicators measured control of corruption, rule of law and government effectiveness. Using private sector credit as a percentage of GDP, commercial bank assets as a percentage of gross domestic product (GDP), liquid liabilities as a percentage of GDP, as measures of financial development, they found that the impact of finance on growth is positive and significant only after a certain threshold level of institutional development has been attained. Until then, the effect of finance on growth is non-existent.

This literature, however, examines the moderating role of the general legal framework in the access–growth nexus as indicated in the measures of legal institutions interacted with measures of financial development – institutional quality, rule of law, government effectiveness, corruption and bureaucratic quality. We extend this literature by examining the moderating role of legal institutions specific to the protection of consumers of financial products, FCP regulations, in the access–economic development nexus.

The rest of the paper is organised as follows: the next section presents the methodology for the study; Section 3 presents results and Section 4 presents the conclusions and policy recommendations.

2. Econometric methodology

2.1 Data

This study uses data on 102 countries surveyed in World Bank (2013). The list of countries used in the study is presented in Table AI.

2.2 Summary statistics

Summary statistics of the variables used in this study is shown in Table I. The mean score on the index of FCP is 57 percent, which is just a little above average, indicating that more needs to be done to promote FCP across countries.

2.3 Model specification

To investigate the moderating role of FCP on economic development, we specify the following empirical model in line with the approach of Asongu *et al.* (2017) as follows:

$$\text{Edev} = a_0 + a_1 \text{FCP}_i + a_2 \text{FA}_i + a_3 \text{FCP}_i \times \text{FA}_i + Z_i^1 \beta + \varepsilon_i. \quad (1)$$

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Variable	Obs	Mean	SD	Min.	Max.
<i>Dependant variable</i>					
HDI	98	0.73	0.15	0.35	0.94
<i>Explanatory variables</i>					
AO	101	59.38	30.57	3.49	100.00
FS	101	24.95	18.78	0.96	78.41
FC	101	13.33	7.20	1.38	40.51
IFCP	101	0.57	0.27	0.00	1.00
CMI	101	3.62	2.57	0.00	8.00
DRI	101	2.92	1.73	0.00	6.00
IFT	101	3.73	2.00	0.00	6.00
EI	101	3.20	2.00	0.00	6.00
GDI	101	2.24	1.49	0.00	4.00
DDI	101	2.90	1.79	0.00	5.00
CDI	101	2.85	1.37	0.00	4.00
<i>Conditioning variables</i>					
GS	93	22.02	9.64	0.00	49.66
DC	98	63.58	47.56	2.45	233.40
POP	100	1.10	1.24	-1.410	5.97
PR	99	3.01	1.99	1.0	7.00
TT	100	87.83	53.36	19.46	438.76
GC	100	15.95	6.93	5.34	63.94
INF	97	4.59	8.03	-1.42	62.17

Notes: AO is account ownership; FS, formal saving; FC, formal credit; IFCP, index of financial consumer protection; CMI, compliance monitoring index; DRI, dispute resolution and recourse index; IFT, fair treatment index; EI, enforcement Index; GDI, general disclosure index; DDI, deposit disclosure index; CDI, credit disclosure index; GS, gross savings/GDP; DC, domestic credit to private sector/GDP; POP is population growth rate; PR, political risk rating; TT, sum of exports and imports/GDP; GC, government consumption; INF, inflation

Table I.
Descriptive statistics

“Edev” is our dependant variable and denotes economic development, proxied by the human development index (HDI). The economic development effect of financial access as exhibited in the literature review extends beyond increases in income to improvements in health, education and general wellbeing. Accordingly, the most appropriate measure of economic development that captures this is HDI. The HDI has three component measures all of which are indicators of economic development. These are living standards (measured by GDP per capita), longevity (proxied by life expectancy) and knowledge (measured by educational attainments). Indeed, one of the best development economics texts, Todaro and Smith (2012) regards the HDI as a better measure of economic development than mere GDP growth or GDP per capita. Moreover, its use as a measure of economic development is not alien to the literature (see Arora, 2014).

“FCP” is our main explanatory variable and denotes FCP proxied by the principal components analysis (PCA) constructed index of financial consumer protection (IFCP) and its five sub-indices, namely, the fair treatment index (FTI), dispute resolution and recourse index (DRI), disclosure index (DI), compliance monitoring index(CMI) and enforcement index (EI) to enable a more nuanced examination of the moderating role of various types of FCP regulations.

“FA” denotes financial access proxied by three measures, account ownership (AO), measured as the percentage of adults 15+ with an account at a formal financial institution, formal savings (FS), measured as the percentage of adults who over the past 12 months have saved with a formal financial institution and formal credit (FC), measured as the percentage of adults who over the past 12 months have borrowed from a formal financial institution.

“FCP×FA” denotes interaction between measures of FCP and financial access. We interact each indicator of financial access (AO, FS, FC) with the overall index of FCP as shown in (2) to ascertain the overall impact of FCP on the access–growth nexus. We further interact each indicator of financial access (AO, FS, FC) with the sub-indices of FCP, namely, FTI, CMI, DRI, DI and EI, as set out in (3)–(7) for a more nuanced examination of the role of specific FCP regulations in the access–development nexus:

$$\text{Edev}_i = a_0 + a_1 \text{IFCP}_i + a_2 \text{FA}_i + a_3 \text{IFCP}_i \times \text{FA}_i + Z_i^1 \beta + \varepsilon_i, \quad (2)$$

$$\text{Edev}_i = a_0 + a_1 \text{FTI}_i + a_2 \text{FA}_i + a_3 \text{FTI}_i \times \text{FA}_i + Z_i^1 \tau + \varepsilon_i, \quad (3)$$

$$\text{Edev}_i = \eta_0 + \eta_1 \text{CMI}_i + \eta_2 \text{FA}_i + \eta_3 \text{CMI}_i \times \text{FA}_i + Z_i^1 \delta + \varepsilon_i, \quad (4)$$

$$\text{Edev}_i = \Omega_0 + \Omega_1 \text{DRI}_i + \Omega_2 \text{FA}_i + \Omega_3 \text{DRI}_i \times \text{FA}_i + Z_i^1 \omega + \varepsilon_i, \quad (5)$$

$$\text{Edev}_i = \delta_0 + \delta_1 \text{DI}_i + \delta_2 \text{FA}_i + \delta_3 \text{DI}_i \times \text{FA}_i + Z_i^1 \varrho + \varepsilon_i, \quad (6)$$

$$\text{Edev}_i = \phi_0 + \phi_1 \text{EI}_i + \phi_2 \text{FA}_i + \phi_3 \text{EI}_i \times \text{FA}_i + Z_i^1 \zeta + \varepsilon_i. \quad (7)$$

Z^1 is a vector of control variables. Following the finance-growth literature, we include the following control variables: population growth rate, to control for the size of the economies; gross savings, to control for investment; government consumption and inflation, to control for macroeconomic stability; total exports and imports to GDP, to control the openness of the economy and domestic credit to private sector as a percentage of GDP, to control for the level of financial development. We also include the political risk rating to control for the institutional environment.

We expect gross savings to be positively related to economic development, as higher gross savings result in increased availability of capital investment that promotes economic development (Solow, 1956). The population growth rate affects economic development through its impact on the dependency ratio, investment, savings behaviour and quality of human capital. The effect could be positive (Petrakos *et al.*, 2007) or negative (Pritchett, 2001). We expect an increase in domestic credit provided to the private sector to result in higher economic development (Schumpeter, 1912). Increased government expenditure can result in higher or lower economic development depending on whether the funds are used to finance bloated bureaucracy, ineffective public programmes, to distort market incentives and to assume roles more appropriate for the private sector (Loayza and Soto, 2002) or used to finance needed infrastructure, such as education and health (Gohou and Soumare, 2012). Investors will only invest where their rights are protected and their investments are secure (Djankov *et al.*, 2007). The higher the civil liberties index, the poorer the institutional quality. Hence, we expect a negative relationship between the civil liberties index and economic development. The more open an economy is to trade, the higher its economic development is likely to be, as it enables the exploitation of comparative advantage, technology transfer and diffusion of knowledge, increasing scale economies and competition. Empirical evidence of the link between the openness of an economy and economic development is, however, mixed. Although some find that it leads to faster growth, others find it has no significant effect on growth (Pritchett, 2001). A detailed description of these variables and the source of data is presented in Table AII. $\kappa_j, \eta_j, \Omega_j, \delta_j, \phi_j$ ($j = 0, 1, 2, 3, \dots, n$) $\beta, \tau, \delta, \Omega, \zeta$ are the coefficients; $i, \dots, n$ refers to countries, ε_i refers to the error term and Z denotes control variables.

2.4 Index of FCP

Following the approach of the Gallup World Poll in constructing the Disclosure and Dispute Resolution Index found in the G20 Financial Inclusion Indicators, as well as Allen *et al.* (2012) in constructing their Enforcement and Monitoring Indices, we first constructed the sub-indices as a simple sum of the indicators of each index as follows:

$$X_i = \sum_{j=1}^N x_{ij}, \quad (8)$$

x_{ij} in the model denotes the individual indicators of each sub-index and X_i denotes sub-indices. Countries score “1” for the presence of each indicator and “0” otherwise. A description of indicators used and data sources is set out in Table AIII.

Subsequently, in line with Anthony and Rao (2007), and Pradhan *et al.* (2014), we combined the sub-indices to form the index of FCP using the PCA approach to index construction, where the index is a product of extracted component loadings (w) and original variables (X) -here, the sub-indices as follows:

$$\text{IFCP}_i = \sum_{j=1}^N X_{ij} w_j, \quad (9)$$

where IFCP_i denotes, the index of financial consumer protection for country “ i ”; X_i denotes sub-indices of financial consumer protection for country “ i ”. w_j denotes weight of variable X in relation to principal component “ j ”.

Each principal component is a linear weighted combination of the original variables as follows:

$$P_k = b_{1k}X_1 + b_{2k}X_2 + \dots + b_{jk}X_k, \quad (10)$$

where $X_1, X_2, \dots, X_k$ denote the sub-indices of FCP, P_k denotes principal component, b_{1k} denotes component loadings, which are weights that indicate the degree of relationship of each principal component with the sub-indices and show the variance contribution of principal components to the sub-indices. For each country, the P_k is generated by substituting each country's values of X_{ij} s (sub-indices) into Equation (10). For each principal component, $P_1, P_2, \dots, P_k$, eigenvalues are generated that indicate the percentage of variation in the total data explained by the principal components. Using the Eigenvalue rule, one principal component explaining 64 percent of the variation was extracted.

Before subjecting the sub-indices to PCA, we first standardized the sub-indices using the Z-score that imposes a standard normal distribution (i.e. a mean of 0 and a standard deviation of 1) (Freudenberg, 2003) as follows:

$$Z = \frac{\text{actual value} - \text{mean value}}{\text{standard deviation}}. \quad (11)$$

We also carried out the Kaiser–Meyer–Okin (KMO) and Bartlett's test of sphericity (BTS) to ascertain the appropriateness of doing a PCA. KMO is a measure of sampling adequacy used to check the case-to-variable ratio for the analysis being conducted. The BTS tests the hypothesis that the correlation matrix is an identity matrix. For the factor analysis to be valid, this hypothesis must be rejected. The accepted minimum score for KMO is 0.6, though it ranges from 0 to 1. Bartlett's test of sphericity must be less than 0.05. Test results show that our KMO is 0.810 and our Bartlett's test is less than 0.05, indicating that a PCA would be useful.

3. Discussion of results

3.1 White adjusted least squares regression results

3.1.1 FCP and the access–economic development nexus. The net effect on economic development from the interaction between financial access and FCP is presented in Tables II–IV. Table II shows the net effect from interactions between indicators of financial access and the overall IFCP, whereas Tables III and IV show the net effect from interactions between indicators of financial access and individual FCP regulations, namely, fair treatment, disclosure, dispute resolution and recourse, enforcement and compliance monitoring for a more nuanced analysis of the effect of FCP in the access–economic development nexus.

In Column (1) of Table II, we interact the overall IFCP with the headline indicator of financial access – Account Ownership (AO). In Columns (2) and (3), we interact the index with our two additional indicators of financial access – access to formal savings (FS) and access to formal credit (FC). From Table II, we can establish that the interaction of the overall IFCP with AO and FS has a positive effect on economic development. The net effect on economic development of the interaction between AO and the IFCP is 0.00277 (0.00459+ (−0.00319 × 0.57)). In the computation, 0.00459 is the effect of financial access on economic development, given that FCP is “0”. −0.00319 is the conditional effect from the interaction between financial access (AO) and FCP regulations, whereas 0.57 is the mean of the overall index of FCP (see Asongu *et al.*, 2017; Tchamyou, 2018). Similarly, the net effect on economic development of the interaction between FS and IFCP regulations is 0.00320 (0.00714+ (−0.00691 × 0.57)) (Column (2)).

These results are in line with conventional wisdom, as we expect financial services obtained in an environment where there is FCP to be free from abusive and unfair practices and, hence, enhance economic development. For instance given the existence of fair treatment and disclosure regulations, financial advice is likely to be credible, disclosures complete and interest rates not usurious, culminating in improved consumer welfare,

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Variables	(1) Account ownership (AO)	(2) Formal savings (FS)	(3) Formal credit (FC)
Financial access	0.00459*** (0.000862)	0.00714*** (0.00158)	0.0126** (0.00512)
Consumer protection (IFCP)	0.248*** (0.0704)	0.212*** (0.0594)	0.186** (0.0912)
Interactive term	−0.00319*** (0.00122)	−0.00691*** (0.00245)	−0.0100 (0.00684)
Gross savings/GDP	0.000777 (0.000908)	0.000663 (0.00108)	0.00133 (0.00113)
Domestic credit/GDP	0.000310 (0.000213)	0.000536* (0.000314)	0.000846*** (0.000204)
Population	−0.0217* (0.0118)	−0.0472*** (0.0138)	−0.0444*** (0.0121)
Political risk rating	−0.00492 (0.00374)	−0.00379 (0.00478)	−0.00564 (0.00441)
Sum of imports exports/GDP	3.73e−05 (8.72e−05)	7.96e−05 (0.000126)	0.000184 (0.000140)
Government consumption	0.00139* (0.000778)	0.00150* (0.000822)	0.00222** (0.000914)
Inflation	−0.00173 (0.00168)	−0.00179 (0.00164)	−0.00181 (0.00189)
Constant	0.423*** (0.0542)	0.535*** (0.0534)	0.478*** (0.0709)
Net effect of FCP	0.00277	0.00320	na
R ²	0.853	0.781	0.794
F-statistic	64.91	39.06	35.88
Observations	86	86	86

Notes: Robust standard errors in parentheses. Column (1) interacts financial access measured in terms of ownership of a formal account with the index of financial consumer protection (IFCP); Column (2) interacts formal savings measured as the percentage of adults who over the past 12 months have saved with a formal financial institution with the index of financial consumer protection (IFCP); Column (3) interacts formal credit, measured as the percentage of adults who over the past 12 months have borrowed from a formal financial institution with the index of financial consumer protection (IFCP). * $p < 0$; ** $p < 0.05$; *** $p < 0.01$

Table II.
Financial consumer
protection and the
access–economic
development nexus

Table III.
Fair treatment, disclosure, dispute resolution and recourse regulations and the access-development nexus

Variables	Fair treatment		Disclosure		Dispute resolution and recourse				
	(1) AO Account ownership	(2) FS Formal savings	(3) FC Formal credit	(4) AO Account ownership	(5) FS Formal savings	(6) FC Formal credit	(7) AO Account ownership	(8) FS Formal savings	(9) FC Formal credit
Financial access	0.00398*** (0.000707)	0.00570*** (0.00131)	0.0171*** (0.00393)	0.00397*** (0.000562)	0.00513*** (0.000919)	0.0126*** (0.00339)	0.00427*** (0.000684)	0.00543*** (0.00112)	0.0134*** (0.00327)
Consumer protection (FTI)	0.0257*** (0.00876)	0.0249*** (0.00738)	0.0367*** (0.0113)	0.0425*** (0.0126)	0.0208*** (0.00770)	0.0234* (0.0139)	0.0332*** (0.0102)	0.0258*** (0.00859)	0.0339*** (0.0136)
Interactive term	-0.000313** (0.000141)	-0.000706** (0.000277)	-0.00253*** (0.000815)	-0.00045*** (0.000161)	-0.00071*** (0.000209)	-0.00186*** (0.000916)	-0.000497*** (0.000166)	-0.000870*** (0.000294)	-0.00231*** (0.000983)
Gross savings/GDP	0.00122 (0.000885)	0.00116 (0.00107)	0.00114 (0.00111)	0.000419 (0.000973)	0.00115 (0.00114)	0.00180 (0.00115)	0.000752 (0.000951)	0.000822 (0.00114)	0.00104 (0.00117)
Domestic credit/GDP	0.000275 (0.000209)	0.000477 (0.000299)	0.000869*** (0.000183)	0.000180 (0.000194)	0.000510* (0.000304)	0.000936*** (0.000179)	0.000346* (0.000203)	0.000577* (0.000303)	0.000915*** (0.000214)
Population	-0.0228* (0.0117)	-0.0468*** (0.0137)	-0.0390*** (0.0103)	-0.0219*** (0.00973)	-0.0498*** (0.0135)	-0.0485*** (0.0112)	-0.0233* (0.0117)	-0.0489*** (0.0135)	-0.0453*** (0.0105)
Political risk rating	-0.00564 (0.00386)	-0.00499 (0.00481)	-0.00532 (0.00416)	-0.00445 (0.00410)	-0.00548 (0.00532)	-0.00682 (0.00455)	-0.00369 (0.00380)	-0.00354 (0.00483)	-0.00537 (0.00439)
Sum of imports exports/GDP	2.44e-05 (9.21e-05)	7.70e-05 (0.000147)	0.000188 (0.000128)	4.12e-05 (8.77e-05)	0.000152 (0.000142)	0.000166 (0.000144)	6.12e-05 (9.41e-05)	0.000127 (0.000132)	0.000156 (0.000156)
Government consumption	0.00101 (0.000713)	0.00120 (0.000777)	0.00240** (0.000985)	0.000538 (0.000703)	0.000734 (0.000716)	0.00194** (0.000879)	0.000975 (0.000700)	0.00108 (0.000765)	0.00199*** (0.000898)
Inflation	-0.00184 (0.00148)	-0.00217 (0.00159)	-0.00229 (0.00208)	-0.00144 (0.00138)	-0.00129 (0.00150)	-0.00141 (0.00160)	-0.00190 (0.00139)	-0.00195 (0.00144)	-0.00194 (0.00167)
Constant	0.465*** (0.0471)	0.563*** (0.0476)	0.437*** (0.0564)	0.480*** (0.0395)	0.593*** (0.0404)	0.505*** (0.0591)	0.464*** (0.0444)	0.581*** (0.0429)	0.498*** (0.0512)
Net effect of FCP	0.00281	0.00307	0.00766	0.00296	0.00307	0.00730	0.00282	0.00289	0.00665
R ²	0.848	0.779	0.811	0.861	0.767	0.785	0.847	0.774	0.796
F-statistic	66.40***	37.23***	45.45***	66.63***	47.06***	39.31***	58.57***	37.15***	43.87***
Observations	86	86	86	86	86	86	86	86	86

Notes: Robust standard errors in parentheses. Columns (1)–(3) interacts financial access measured in terms of ownership of a formal account, formal savings and formal credit with the index of fair treatment regulations (IF-T); Columns (4)–(6) interacts with index of disclosure regulations(DI); Columns (7)–(8) with the index of dispute resolution (DRI). Interaction effect in columns (4)–(6) are calculated using the mean of general disclosure index (GDI), deposit disclosure index (DDI) and credit disclosure index (CDI), respectively. **p* < 0; ***p* < 0.05; ****p* < 0.01

Notes: Robust standard errors in parentheses. Columns (1)–(3) interact financial access measured in terms of ownership of a formal account, formal savings and formal credit with the index of fair treatment regulations (IFT); Columns (4)–(6) interact with index of disclosure regulations (DI); Columns (7)–(9) with the index of dispute resolution (ORI). Interaction effect in columns (4)–(6) are calculated using the mean of general disclosure index (GDI), deposit disclosure index (DDI) and credit disclosure index (CDI), respectively. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Variables	Enforcement			Compliance monitoring		
	(1) AO Account ownership	(2) FS Formal savings	(3) FC Formal credit	(4) AO Account ownership	(5) FS Formal savings	(6) FC Formal credit
Financial access	0.00276*** (0.000574)	0.00274** (0.00122)	0.00569** (0.00223)	0.00394*** (0.000609)	0.00398*** (0.000903)	0.00737*** (0.00267)
Consumer protection (EI)	-0.000741 (0.00915)	0.00284 (0.00875)	0.000654 (0.00799)	0.0221*** (0.00725)	0.0129** (0.00636)	0.00739 (0.00738)
Interactive term	6.79e-05 (0.000131)	5.21e-06 (0.000281)	0.000356 (0.000475)	-0.000272** (0.000107)	-0.000302 (0.000196)	-0.000159 (0.000425)
Gross savings/						
GDP	0.00149 (0.000932)	0.00141 (0.00118)	0.00197* (0.00109)	0.00104 (0.000854)	0.00105 (0.00112)	0.00188* (0.00113)
Domestic credit/						
GDP	0.000205 (0.000206)	0.000499 (0.000306)	0.000900*** (0.000200)	0.000260 (0.000200)	0.000520 (0.000322)	0.000891*** (0.000190)
Population	-0.0306** (0.0127)	-0.0552*** (0.0142)	-0.0517*** (0.0122)	-0.0236* (0.0119)	-0.0510*** (0.0142)	-0.0490*** (0.0122)
Political risk rating						
Sum of imports and exports/	-0.00568 (0.00404)	-0.00650 (0.00537)	-0.00548 (0.00449)	-0.00496 (0.00382)	-0.00586 (0.00524)	-0.00618 (0.00447)
GDP	9.78e-06 (9.86e-05)	8.99e-05 (0.000149)	0.000208 (0.000153)	2.81e-05 (9.25e-05)	7.70e-05 (0.000135)	0.000194 (0.000145)
Government consumption	1.89e-05 (0.000736)	0.000494 (0.000780)	0.00151* (0.000861)	0.000682 (0.000651)	0.000721 (0.000701)	0.00174** (0.000866)
Inflation	-0.00102 (0.00129)	-0.00129 (0.00174)	-0.00116 (0.00154)	-0.00162 (0.00153)	-0.00170 (0.00156)	-0.00162 (0.00163)
Constant	0.566*** (0.0427)	0.660*** (0.0460)	0.571*** (0.0462)	0.480*** (0.0435)	0.623*** (0.0443)	0.550*** (0.0510)
Net effect of FCP	na	na	na	0.00296	na	na
R ²	0.825	0.748	0.783	0.846	0.760	0.783
F-statistic	64.53***	33.67***	47.88***	57.18***	45.61***	42.34***
Observations	86	86	86	86	86	86

Notes: Robust standard errors in parentheses. Columns (1)–(3) interacts financial access measured in terms of ownership of a formal account, formal savings and formal credit with the Index of enforcement regulations (EI); Columns (4)–(6) interacts financial access with the Index of Compliance regulations (CMI). * $p < 0$; ** $p < 0.05$; *** $p < 0.01$

Table IV.
Enforcement,
compliance monitoring
regulations and the
access-economic
development nexus

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sound competition, efficiency and stability in the financial marketplace which ultimately result in enhanced economic development. However, they contradict the argument that compliance with FCP regulations imposes additional costs on providers, which providers may pass on to consumers ultimately, making financial access costly and accessible to only a few (Evans and Wright, 2010; Wright and Helland, 2011) and resulting in inefficient resource allocation that is inimical to economic development.

Further detailed analyses of the role of FCP in the access–economic development nexus based on the sub-indices of FCP regulations presented in Tables III and IV reach similar conclusions. From Table (III), we can establish a positive net effect on economic development from interactions between account ownership, access to saving or credit at a formal financial institution and the indices of fair treatment, disclosure, dispute resolution and recourse regulations.

For fair treatment regulations, this finding is supported by the argument that these regulations promote competition and reduce the tendency for providers to make quick profits through the obfuscation of consumers of financial products and, hence, improves consumer welfare. Regulations that prohibit deceptive advertising, for instance, hold providers legally responsible for statements made in their adverts.

Similarly, for disclosure regulations, our findings are in line with the argument that mandatory disclosures at account opening remove information asymmetry, engender trust and willingness to participate in financial markets, resulting in improved economic development. However, our findings contradict the position of the behavioural law, and finance scholars such as Bar-Gill and Warren (2008) and Thaler and Sunstein (2008) stated that disclosures per se are ineffective as a consumer protection tool unless used in conjunction with financial education, due to cognitive limitations. Barr *et al.* (2008) for instance argued that due to behavioural tendencies, even well-established and efficient disclosures may be insufficient. Campbell *et al.* (2011, p. 7) also note that, “consumers may lack the cognitive capacity to optimise their financial situation even if presented with all the information that in principle is required to do so.”

From Table (IV), we can establish that, interactions between enforcement regulations and account ownership, access to savings or credit has no significant effect on economic development. The existence of enforcement mechanisms such as the imposition of fees and penalties deters abuse by providers, engender competition, and instil confidence in the financial system and, hence, is expected to contrary to our findings, enhance economic development. However, our findings are in line with the argument that implementing these enforcement mechanisms require a lot of resources and expertise, which most supervisory authorities lack so that while these regulations exist, they are actually ineffective and, hence, make no impact on economic development. As noted by CGAP 2010, for instance, out of 85 countries that had regulations that authorised supervisors to issue warnings, only 21 reported to have actually issued warnings.

Similarly, although the effect on economic development from the interaction between compliance regulations and account ownership is positive, Table (IV) shows that there is no sufficient evidence to suggest that interactions between these regulations and access to savings or credit significantly affect economic development. Again this is contrary to expectation as the existence of compliance monitoring regulations, such as requiring providers to report fees for products advertised on their website enables consumers to compare prices, which promotes competition and maximises consumer welfare. However, our results are not surprising given the report by CGAP 2010, that most economies do not have appropriate compliance monitoring mechanisms in place. Furthermore, though responsible for monitoring compliance, the authority of supervisory agencies to take action tends to be limited by the requirement that, they could only take action if identified consumer protection violations posed a risk to financial stability. According to the World Bank (2013), although in most countries supervisors have the responsibility of collecting

complaint statistics, few have the authority to assist directly in resolving complaints or to make binding decisions.

Concerning the conditioning variables, our results indicate that investment, openness of the economy, the institutional environment and macroeconomic stability have no significant impact on economic development, whereas government consumption and financial development have a significantly positive effect on economic development. Financial development proxied by domestic credit provided to the private sector as a percentage of GDP is also positively related to economic development in line with Schumpeter (1912). The political risk rating is also negatively related to economic development, as expected. A high political risk rating indicates a weak institutional environment, which is inimical to economic development. Investors will only invest where their rights are protected, and their investments are secure (Djankov *et al.*, 2007). We find government consumption has a significant positive effect on economic development. This can be expected, where public funds are invested in infrastructure that promotes economic development such as education and health (Gohou and Soumare, 2012). The population growth rate also has a negative effect on economic development. This is in line with the findings of Petrakos *et al.* (2007) who indicate that the high population growth rate has a negative impact on economic growth through its impact on the dependency ratio, on investment and savings behaviour and quality of human capital.

3.2 Robustness test -instrumental variable estimation

To address potential endogeneity bias arising from the possible reverse causality between financial access and economic development as well as between FCP and economic development, we estimate the link between financial access, FCP and economic development using the two-stage least squares regressions (2SLS) as follows:

$$Y_1 = y_2\beta_1 + x_1\beta_2 + u, \quad (12)$$

where Y_1 is the dependant variable, economic development, y_2 is the estimated value of the endogenous variable (here financial access and FCP) and x_1 denotes the exogenous variables. At the first stage, we estimate the following equation:

$$y_2 = x_1y_1 + x_2y_2 + e, \quad (13)$$

and subsequently incorporate the estimate value for y_2 into Equation (12).

3.2.1 Choice of instruments. Several instruments have been used in the finance-growth literature to control reverse causality between finance and growth, including legal origin (Beck *et al.*, 2006), risk aversion, ethnic fractionalization (Barth *et al.*, 2009; Beck *et al.*, 2006) and percentage of years that the country has been independent since 1776 (e.g. Beck *et al.*, 2006; Houston *et al.*, 2010). In examining the access-growth nexus, Honohan (2008) used bank trust and financial sector knowledge as instruments for the use of finance. Others researchers used a lag of growth or economic development as instruments. Beck *et al.* (2014) and Fowowe (2017) recently used measures of the banking regulatory and supervisory structure as instrumental variables. None of these, however, was strong enough for our model (first stage F -statistic less than 10). We used the number of Automated Teller Machines (ATMs) per 100,000 adults as an instrument for financial access. The rationale is that increased proximity to a provider, measured as the demographic or geographic spread of bank branches, ATM or POS terminals will increase access to financial services while being orthogonal to economic development.

In searching for an instrument for FCP, we examined the legal institutions and economics growth literature. Studies that examine the impact of institutions on economic

growth have used various instruments for legal institutions, including the latitude and share of the population that speak a western language (see Hall and Jones, 1999), log of settler mortality rate (see Acemoglu *et al.*, 2001), legal tradition or origin (Berggren and Jordahl, 2006; Faria and Montesinos, 2009), identity of colonizer and settlement conditions, proxied by indigenous population density (Bennett *et al.*, 2017). We use supervisory responsibility for financial education as our instrument for FCP. The intuition is that financial literacy enhances consumer protection in that, all other things being equal, financially literate consumers will be more informed and capable of evaluating product offers and, hence, are less susceptible to unfair treatment and obfuscation as they are equipped to make informed judgement about their finances (World Bank, 2014). As shown by evidence from the US mortgage market (see Van Order *et al.*, 2007), well-educated consumers are less likely to make mistakes. Again, providers are cautious when dealing with financially literate consumers. Furthermore, the World Bank, 2014 indicates that there is a higher tendency for financial institutions to target risky and costly products at financial consumers who are not well-educated and, hence, more prone to making mistakes in choosing financial products. Hence, in an environment where there is a deliberate policy for financial education, we expect that FCP will be enhanced, which will in turn enhance economic growth. Supervisory responsibility for financial education is highly correlated with FCP, and it enhances economic growth through its effect on FCP and, hence, serves as a good instrument for FCP.

3.3 Results – instrumental variable estimation

As we use robust standard errors for our regressions, we perform the Woolridge robust and robust score tests to examine the endogeneity of financial access and FCP. The Woolridge robust and robust score test the null hypothesis that the variables are exogenous. Significant *p*-values indicate the rejection of the null hypothesis and confirmation that the variable is endogenous.

We limit the analysis to AO, our headline indicator of financial access, as the number of ATMs per 100,000 adults was a weak instrument for access to savings and credit. The first-stage *F*-statistics for financial access is 11.0757. As this exceeds 10, it indicates that our instruments are not weak (Staiger and Stock's, 1997 rule of thumb for one endogenous variable). First-stage regression summary statistics for financial access is presented in Table AIV.

Due to the endogenous financial access variable, and consequently, the interaction term, we re-estimate Equation (1) using the number of ATMs per 100,000 adults (ATM) as an instrument for FA and ATM X FCP as an instrument for the interactive term (see Ozer-Balli and Sørensen, 2010) as follows:

$$\text{Edev}_i = a_0 + a_1 \text{FCP}_i + a_2 \text{ATM}_i + a_3 \text{FCP}_i \times \text{ATM}_i + Z_i^1 \beta + \varepsilon_i. \quad (14)$$

From Table V, we can establish that, after controlling for endogeneity, the net effect on economic development of interactions between the overall index of FCP regulations and AO is positive, 0.00113 (0.00242 + (−0.00226 × 0.57)).

4. Conclusions, policy implications and recommendations

Over the past decade, FCP has come to the forefront of international development strategy following evidence that the lack of effective disclosure, deceptive advertising by suppliers of financial services and failure to understand financial products were contributory factors to the subprime mortgage crisis and its attendant bank runs in the USA (Ardic *et al.*, 2011). Coupled with the increasing array and complexity of financial products and services, increased onus being put on consumers to take their own financial decisions, as well as the global agenda of broadening financial access it has become increasingly important to have a

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Table V.
Endogeneity
adjusted OLS
regression results:
financial consumer
protection and the
access-economic
development nexus

Variables	(1) AO Account ownership
Financial access IV	0.00242*** (0.000844)
Consumer protection (IFCP)	0.206*** (0.0610)
Interactive term	-0.00226** (0.00112)
Gross savings/GDP	0.00153 (0.00101)
Domestic credit/GDP	0.000739** (0.000297)
Population	-0.0314** (0.0124)
Political risk rating	-0.00924** (0.00431)
Sum of imports exports/GDP	0.000438* (0.000226)
Government consumption	0.00172** (0.000812)
Inflation	-0.00132 (0.00203)
Constant	0.481*** (0.061)
Net effect	0.00113
R ²	0.786
F-statistic	27.88***
Observations	83

Notes: Robust standard errors in parentheses. Column (1) interacts financial access (measured in terms of ownership of a formal account but instrumented with “the number of ATMs per 100,000 adults”) with the index of financial consumer protection (IFCP). * $p < 0$; ** $p < 0.05$; *** $p < 0.01$

legal and regulatory framework for the protection of financial consumers. Proponents argue that FCP enhances access to financial services through its disclosure requirements, which remove information asymmetry and ensure consumers are informed, confident, and, hence, more willing to participate in financial markets (Davies, 1999), whereas critics argue that the cost of complying with consumer protection regulations makes the cost of financial products and services high and out of reach of several people fostering financial exclusion, which is inimical to economic development (Evans and Wright, 2010; Wright and Helland, 2011).

In this study, we examined the moderating role of FCP in the access-development nexus. First, the study established positive net effects on economic development from interactions between FCP regulations that foster fair treatment, disclosure, dispute resolution and recourse and financial access, namely, account ownership, access to savings and credit. This is in line with the argument that FCP through its fair treatment, dispute resolution and disclosure regulations remove information asymmetry, limit consumer exploitation, boost their confidence and make them more willing to participate in financial markets thereby enhancing savings mobilisation, access to finance for investment and economic development (Campbell *et al.*, 2010; Melecky and Rutledge, 2011; Rutledge, 2010). The finding has important policy implications for the financial inclusion agenda given increasing recognition of FCP arising from increasing concern over the protection of the growing number of naïve financial consumers participating in the financial markets for the first time. Due to these concerns, efforts continue to be made to institute FCP regimes as part of financial inclusion efforts. Our findings indicate positive effects on economic development of interactions between financial access and FCP regimes. Policy makers should, thus, be sceptical of advocated negative consequences on economic development by critics of FCP of the interactions between FCP and financial access.

Second, the study establishes that there is no significant effect on economic development from interactions between enforcement regulations and account ownership, access to savings and credit. Similarly, although interactions between compliance monitoring regulations and AO have a positive net effect on economic development, we find no sufficient evidence to suggest that interactions between these regulations and access to savings and credit have a significant effect on economic development. This is attributed to the existence of enforcement and compliance monitoring mechanisms without the requisite supervisory authority and resources, consequently limiting the ability of supervisory

authorities to implement these mechanisms. Therefore, although these regulations exist, they are actually ineffective and make no impact on economic development (World Bank, 2013). The positive net effect when compliance monitoring regulations interacted with AO could be attributed to the mere existence of these regulations instilling confidence and making consumers willing to take that initial step of having an account in a formal financial institution. Subsequently implementation constrains result in their existence having no impact on access to savings and credit and hence economic development. These findings should, however, not be construed as indicating that these regulations are less important. Conversely, they highlight the fact that instituting FCP regimes per se may not be enough. Policy makers need to consider possible intervening factors such as provision of adequate resources and supervisory authority for compliance monitoring and enforcement to achieve the expected positive effect on economic development.

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Appendix 1

Albania	Czech Republic	Kyrgyz Republic	Portugal
Algeria	Denmark	Latvia	Romania
Argentina	Dominican Republic	Lebanon	Russian Federation
Armenia	Ecuador	Lithuania	Senegal
Australia	El Salvador	Macedonia	Serbia
Austria	Estonia	Madagascar	Slovak Republic
Azerbaijan	Finland	Malawi	Slovenia
Bangladesh	France	Malaysia	South Africa
Belarus	Georgia	Mali	Spain
Belgium	Germany	Mauritius	Sri Lanka
Benin	Greece	Mexico	Sudan
Bolivia	Guatemala	Moldova	Switzerland
Bosnia and Herzegovina	Honduras	Mongolia	Taiwan
Botswana	Hong Kong SAR, China	Namibia	Tajikistan
Brazil	Hungary	Nepal	Tanzania
Bulgaria	Indonesia	The Netherlands	Thailand
Burkina Faso	Islamic Republic of Iran	Nicaragua	Togo
Burundi	Ireland	Niger	Turkey
Canada	Israel	Nigeria	Uganda
Chile	Italy	Norway	Ukraine
China	Jamaica	Pakistan	United Arab Emirates
Colombia	Japan	Panama	UK
Costa Rica	Kazakhstan	Peru	USA
Cote d'Ivoire	Kenya	Philippines	Uruguay
Croatia	Republic of Korea	Poland	Venezuela, RB
			Zambia

Table AI.
List of countries
used in the study

	Variable	Description	Source of data
Table AII. Dependant, explanatory and conditioning variables and data source	HDI	Human development index	UNDP
	AO	Account ownership Percentage of adults 15+ with an account at a financial institution	Global finindex (2014)
	FS	Formal savings the percentage of adults who over the past 12 months have saved with a formal financial institution	—
	FC	Formal credit the percentage of adults who over the past 12 months have saved with a formal financial institution; and formal credit	—
	FCP	Financial consumer protection	World bank survey on financial consumer protection and financial literacy (2013)
	FTI	Fair treatment regulations	
	DRI	Dispute resolution and recourse mechanisms	
	EI	Enforcement regulations	
	CMI	Compliance monitoring regulations	
	DI	Disclosure regulations	
	POP	Population growth rate	WDI
	GS	Gross savings/GDP	WDI
	DC	Domestic credit/GDP	WDI
	TT	Sum of imports and exports/GDP	WDI
	INF	Inflation	WDI
	GC	Government consumption expenditure/GDP	WDI
	PR	Political risks rating ^a	Freedom house
		Number of ATMs per 100,000 adults	Financial access survey 2014

Appendix 3

Financial
access and
economic
development

Indicators	Description of indicators	Data source
Compliance monitoring index	(1) Financial institutions required to report complaint statistics to Agency, (2) financial institutions required to report rates and fees on services posted on their websites, (3) financial institutions required to operate a hotline/call centre to receive complaints, (4) markets, ads and websites monitored, (5) mystery shopping used, (6) focus group interviews and consumer research done to ensure compliance, (7) onsite inspection and (8) offsite inspection	World bank survey on financial consumer protection and financial literacy 2013
Enforcement index	(1) Warnings issued, (2) providers required to refund excess, (3) providers required to withdraw misleading ads, (4) fees and penalties are imposed, (5) public notices of violations issued and (6) offending providers license withdrawn	
Dispute resolution and recourse index	(1) Financial ombudsman, (2) general ombudsman, (3) mediation service, (4) procedures and processes, (5) timeliness of response and (6) accessibility	
Fair treatment index	(1) Deceptive advertising, (2) unfair/high pressure selling practices, (3) abusive collection practices, (4) unauthorised use of data or breach of client confidentiality, (6) prepayment and (7) bundling and tying	
Disclosure index	General disclosures at account opening (1) plain language ¹ , (2) local language, (3) standard disclosure format, (4) recourse rights and processes Deposit disclosures at account opening (5) APY and interest rate, (6) compounding method, (7) minimum balance requirements, (8) fees and penalties, (9) early withdrawal penalties Credit disclosures at account opening (10) APR using standard formula, (11) fees, (12) computation method, (13) required insurance, (14) free monthly statement for banks and (15) free monthly statement for non-banks	

Table AIII.
Indicators of financial
consumer protection
and data source

Appendix 4

Variable	R^2	Adjusted R^2	Partial R^2	Robust F (1, 74)	Prob > F
FA	0.7107	0.6794	0.1302	11.0757	0.0014

Table AIV.
First-stage regression
summary statistics—
financial access and
economic development

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