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Abstract

The article discusses the impact of physical bank branches on economic growth and the importance of considering this impact in a global context. Despite the rise of internet banking, physical access to essential goods and services remains crucial. Studies have shown a link between financial development, physical bank presence, and economic growth, but these studies have mostly been limited to single-country analyses, or lower territorial jurisdictions. To extend this research, we consider a large sample of countries and employ a Bayesian quantile regression approach to assess the varying impacts of bank branching on development. This method allows for an evaluation of whether the effects differ for poorer and richer regions. Results show that the stage of development is critical when assessing the impact of bank branch networks on development, and that the link is particularly weak in some geographical areas.

Keywords: Bank branches; Financial development; Economic growth; Quantile regression

JEL classification: G21; O16; O47; C23

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The article discusses the impact of physical bank branches on economic growth and the importance of considering this impact in a global context. Despite the rise of internet banking, physical access to essential goods and services remains crucial. Studies have shown a link between financial development, physical bank presence, and economic growth, but these studies have mostly been limited to single-country analyses, or lower territorial jurisdictions. To extend this research, we consider a large sample of countries and employ a Bayesian quantile regression approach to assess the varying impacts of bank branching on development. This method allows for an evaluation of whether the effects differ for poorer and richer regions. Results show that the stage of development is critical when assessing the impact of bank branch networks on development, and that the link is particularly weak in some geographical areas.

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1. Introduction

In recent decades, technological progress has profoundly transformed financial services, expanding digital alternatives and creating new channels of access to banking products. However, these innovations have not eliminated the importance of physical proximity, which remains essential in contexts where the adoption of new technologies is limited or where digital exclusion persists (Hegerty, 2016; Schuetz et al., 2012).

Bank branches therefore continue to play a central role, particularly in low-income areas, where their presence reduces the costs of gathering information about borrowers, facilitates access to credit, and guarantees the provision of basic financial services that digital solutions cannot always replace. In this sense, distance between clients and financial intermediaries still shapes economic outcomes, as highlighted by a wide body of research on financial development, credit access, financial exclusion, and relationship banking (Ergungor, 2010).

Although most of the available evidence originates from the United States, recent years have witnessed a growing interest in other contexts, particularly after the 2007-2008 financial crisis (Bernini and Brighi, 2018; Hasan et al., 2019). The restructuring of banking systems, together with the persistence of financial exclusion, has revived the debate on the role of local bank presence not only in Europe but also across a broader set of economies.

Since that crisis, branch closures have accelerated in advanced economies such as Spain (Martin-Oliver, 2019), the United States, and much of Europe, whereas in several developing countries—including Bolivia, India, and China—branch networks have continued to expand (Bonfim et al., 2021). This divergent evolution raises important questions about the extent to which the stage of economic development conditions the impact of physical banking presence on growth and whether the traditional advantages of proximity remain equally relevant across different contexts.

This study contributes to this debate by analyzing a large international sample of 139 countries and two autonomous regions over the period 2004–2019, assessing whether the economic effects of branches vary according to income level and institutional context. In doing so, the paper moves beyond the limitations of a literature that has largely relied on single-country analyses or subnational case studies, thereby offering a more comprehensive understanding of the global role of branch networks in development.

The analysis employs a Bayesian quantile regression framework that offers two key methodological advantages for this research question. First, given that bank branch databases are

frequently plagued by missing data (a common challenge when working with cross-country financial statistics) Bayesian methods provide superior handling of missing observations by treating them as parameters with prior distributions rather than requiring *ad hoc* imputation procedures (Lunn et al., 2012; Ibrahim et al., 2005). This approach avoids the potential bias introduced by two-step imputation processes and provides uncertainty quantification about the estimations. Second, the use of quantile regression allows us to examine how the impact of bank branches varies across different levels of economic development. Unlike traditional mean regression approaches, quantile regression can capture heterogeneous effects, revealing whether branch density matters more for countries in the lower quantiles of the GDP per capita distribution compared to those in higher quantiles. This methodological approach is particularly relevant given our hypothesis that physical banking infrastructure may be more critical for economic development in lower-income countries than in advanced economies with greater digital financial inclusion (Rioja and Valev, 2004).

The combination of Bayesian estimation with quantile regression has been rarely applied in the banking and development literature, despite its natural fit for addressing questions about heterogeneous treatment effects across the development spectrum. This methodological contribution allows us to provide more nuanced evidence on the conditional importance of bank branches while properly accounting for the data limitations that characterize international banking statistics.

The remainder of the paper is structured as follows. After the introduction, Section 2 reviews the theoretical and empirical background related to financial development, bank branching, and economic growth. Section 3 describes the Bayesian quantile regression approach employed in the empirical analysis. Section 4 presents the research hypotheses, the dataset, and the selection of variables. Section 5 reports the main results and discusses their interpretation. Finally, Section 6 concludes with policy implications.

2. Theoretical and empirical background

There is a large body of evidence suggesting that countries and regions with better developed financial systems and greater access to financial services achieve higher levels of economic development and grow faster (Levine, 1997; Demirgüç-Kunt and Levine, 2001; Claessens and Laeven, 2005). In addition, more recent contributions indicate that financial development also benefits poorer households, fostering a more egalitarian distribution of income and thereby

linking financial inclusion with broader social progress (Madsen et al., 2018). Although debates about causality persist—particularly whether financial development causes growth or merely follows it—the prevailing consensus in the literature is that finance matters for real economic activity and plays a non-trivial role in shaping growth trajectories (Cetorelli, 2010; Demirgüç-Kunt, 2010).

A strand of this literature focuses on the specific role of bank branches as a proxy for financial development and its impact on growth, both at the national and subnational level. Early influential contributions studied the effects of branch deregulation on growth (Jayaratne and Strahan, 1996; Kroszner and Strahan, 1999), while more recent research underscores that, despite technological advances (Chen et al., 2019), the local presence of bank branches continues to foster economic development by providing proximity-based intermediation and reducing informational frictions (Bernini and Brighi, 2018; Hasan et al., 2019). This issue has become particularly salient after the 2007–2008 financial crisis, when the restructuring of banking systems, rising concerns about financial exclusion (Fuster et al., 2022), and the disruptive impact of new technologies (Danisewicz and Elard, 2023) converged to reshape the debate (Martín-Oliver, 2019; Demirgüç-Kunt and Servén, 2010). In parallel, emerging studies also show that branch networks may play a critical role in supporting adaptation to long-term challenges such as climate change and rural development (Abedifar et al., 2024).

The mechanisms underlying these effects often relate to relationship lending. When lenders lack reliable information about borrowers' creditworthiness, adverse selection can lead to credit rationing (Stiglitz and Weiss, 1981). One response is relationship lending, where banks gather soft information through repeated interactions with clients (Sharpe, 1990; Rajan, 1992; Von Thadden, 2004). Such processes work best when banks maintain a local presence, since geographical proximity reduces monitoring costs, improves screening, and facilitates credit access, especially for smaller firms (Petersen and Rajan, 2002; Brevoort and Hannan, 2004; DeYoung et al., 2006). This implies that in low-income countries with less developed financial systems, branches can be decisive for SME financing and, ultimately, for promoting sustained economic growth.

By contrast, in high-income countries with higher levels of financial literacy, widespread digital banking, and stronger institutions, the need for physical branches may be reduced. Institutions play a central role in lowering transaction and information costs (Tanzi and Davoodi, 1997; Charron et al., 2021), and alternative channels such as credit scoring can substitute for soft information. Nonetheless, branches may retain importance in specific contexts—for example, when cultural or informational gaps between lenders and borrowers persist, or when

digital access is uneven—indicating that their role, though diminished, is not entirely obsolete (Calomiris et al., 1994; Hunter and Walker, 1996).

Finally, the widespread closure of bank branches following the financial crisis has attracted growing attention. In Europe, more than 74,000 branches closed between 2008 and 2019, while the US lost over 13,000 in the same period. This trend has been partly attributed to quantitative easing policies that allowed banks to raise deposits without physical presence (Rossi and Scalise, 2022). Although digitalization and efficiency gains may mitigate some of the negative effects of branch closures, concerns remain regarding the long-term consequences for SME lending, financial inclusion, and local development, particularly in countries where technological alternatives remain less developed or unevenly distributed (Houston et al., 2021).

3. Methodology

One of the biggest issues when dealing with linear regression is expressing the relationship for values far from the mean of the variable of interest. Koenker and Bassett (1978) introduced quantile regression, extending least squares methods with a general technique for estimating families of conditional quantile functions. Quantile regression is more robust than conditional mean regression regarding outliers (Yu and Moyeed, 2001), and allows evaluation of covariate roles at different response levels (e.g. poorer and richer countries when the interest is GDP).

If $Q_{Y|\boldsymbol{X}}(p) = \inf\{y : F_{Y|\boldsymbol{X}}(y) \geq p\}$ denotes the p^{th} conditional quantile of response Y given covariate $\boldsymbol{X}$, quantile regression relates this as:

$$Q_{Y|\boldsymbol{X}}(p) = \boldsymbol{X}\boldsymbol{\beta}_p. \tag{1}$$

Based on random sample $\{(y_i, \boldsymbol{x}_i), i = 1, \ldots, n\}$, coefficients $\boldsymbol{\beta}_p$ are estimated by:

$$\hat{\boldsymbol{\beta}}_p = \arg\min_{\boldsymbol{\beta}\in\mathbb{R}^q} \sum_{i=1}^{n} \rho_p(y_i - \boldsymbol{x}_i\boldsymbol{\beta}_p)\,, \tag{2}$$

where the quantile loss function is:

$$\rho_p(u) = u\{p - I(u < 0)\} = \frac{|u| + (2p-1)u}{2} \tag{3}$$

We use the Bayesian paradigm for inference. As indicated in the introduction, its use is particularly advised in our contex, given its capabilities to deal with missing values—which

tend to plague cross-country data on bank branches. Within the Bayesian paradigm, missing values are treated as uncertainty quantities with prior distributions. The observed covariate values contribute to estimating unknown parameters, which inform about missing values Lunn et al. (2012), avoiding bias from two-step imputation processes.

Since the loss function in (3) is proportional to the negative log density of the asymmetric Laplace distribution, minimizing the loss function is equivalent to maximizing the likelihood function formed by independently distributed asymmetric Laplace densities (Yu and Moyeed, 2001). The asymmetric Laplace distribution has density:

$$f(x|\mu,\tau,p) = \tau p(1-p)\exp(-\tau\rho_p(x-\mu))\,,$$

where μ is location parameter, $\tau \in (0,\infty)$ is inverse scale parameter, and $p \in (0,1)$.

The likelihood for parameters $(\boldsymbol{\beta},\tau)$ at fixed p is:

$$\ell(\boldsymbol{y}|\boldsymbol{\beta},\tau) \propto \tau^n \exp\Big(-\tau\sum_{i=1}^{n}\rho_p(y_i-\boldsymbol{x_i\beta})\Big)\,. \tag{4}$$

The posterior distribution combines this likelihood with priors:

$$\pi(\boldsymbol{\beta},\tau|(y_i,\boldsymbol{x}_i)) \propto \pi(\boldsymbol{\beta},\tau)\times\tau^n\exp\Big(-\tau\sum_{i=1}^{n}\rho_p(y_i-\boldsymbol{x_i\beta})\Big)\,. \tag{5}$$

We use typical priors:

$$\tau \sim \Gamma(c_o,d_o); \qquad \boldsymbol{\beta}|\tau \sim \mathrm{N}_k(\boldsymbol{b}_o,\boldsymbol{B}_o)\,, \tag{6}$$

with $c_o, d_o, \boldsymbol{b}_o, \boldsymbol{B}_o$ known.

Since no closed expression exists for the posterior distribution, we use Markov chain Monte Carlo (MCMC) methods implemented in WinBUGS. We employ the partially collapsed Gibbs sampling algorithm based on the location-scale mixture representation of the asymmetric Laplace distribution Kozumi and Kobayashi (2011). By augmenting with latent weights w_i, the likelihood becomes:

$$y_i|w_i,\boldsymbol{\beta},\tau \sim \mathrm{N}\Big(\frac{1-2p}{p(1-p)}w_i+\boldsymbol{x_i\beta},\frac{2w_i}{\tau p(1-p)}\Big)\,, \tag{7}$$

where weights w_i are independent exponential with rate τ.

4. Hypotheses, Data and Variables

We develop the following hypotheses to guide our empirical analysis. First, we hypothesize that bank branch density is positively associated with economic development, as physical access to financial services facilitates transactions, savings, and investment (H1). Second, we expect that the effect of branch networks varies across the income distribution of countries, with stronger impacts in lower-income economies where alternative channels of access remain limited (H2). Third, we hypothesize that other forms of financial intermediation, such as ATMs and domestic credit to the private sector, may act as substitutes or complements to branches, influencing their overall contribution to growth (H3).

To empirically test these hypotheses, we construct a comprehensive cross-country panel dataset that provides wide coverage in both geographical and temporal terms. We assemble a panel covering 139 countries, together with the autonomous regions of Macao and Hong Kong over 2004-2019, which represents around 72% of sovereign states and more than 95% of the world population during the period. The dependent variable is real GDP per capita in logarithms, constructed from GDP and population series provided by the Groningen Growth and Development Centre (Feenstra et al., 2015).

Our main explanatory variable is bank branch density, measured as the number of branches per 100,000 adults, sourced from the IMF Financial Access Survey and the World Bank. To gauge substitution and complementary channels in retail intermediation, we include the number of ATMs per 100,000 adults and domestic credit to the private sector (percent of GDP). These indicators are standard in the literature on financial development and access.

To isolate the role of branch networks from macroeconomic conditions and country fundamentals, we add a set of controls: trade openness, inflation, population growth, employment, human capital, investment and consumption (C+I), and capital stock. The institutional environment is captured by the Worldwide Governance Indicators: control of corruption, government effectiveness, political stability, regulatory quality, rule of law, and voice and accountability. Macroeconomic and governance data are drawn from the World Bank and related official sources.

Missing observations are limited and predominantly random. Consistent with our Bayesian estimation framework, we handle them within the model using weakly informative priors aligned with the empirical distribution of each covariate (for instance, exponential for counts such as branches, ATMs, and credit, and bounded uniforms for rates such as trade and infla-

tion). This approach avoids two-step imputation, propagates uncertainty to the posterior, and preserves the effective sample size across specifications.

Overall, the dataset provides broad geographic and temporal coverage and a transparent set of variables to study how bank branch networks relate to economic performance across income levels and institutional settings. Table 1 includes the descriptive statistics for the relevant data.

5. Results

As show in Table 2, the summary statistics highlight the wide variation in financial development indicators across countries (definitions are provided in Table 1). Bank branch density varies substantially across countries, with Europe showing the highest averages and Africa the lowest, reflecting structural differences in financial development. ATMs per 100,000 adults and credit to the private sector as a percentage of GDP also display wide dispersion, pointing to heterogeneous levels of access to financial services. Figures 1 and 2 complement these descriptive patterns by illustrating the cross-continental evolution of branch networks between 2004 and 2019. Together, they confirm both the persistent gap between regions and the widespread decline in branches over time.

Before turning to the regression estimates, it is worth highlighting two key insights from these descriptive results. First, the structural gap between continents remains pronounced, with Europe at the top and Africa consistently at the bottom of branch density. Second, the global reduction in branches since 2004 suggests that the consequences of branch closures may differ depending on each country's stage of development.

Building on these patterns, Table 3 presents the main results for the full sample (2004–2019) using Bayesian quantile regression. The estimates confirm that the effect of bank branch density on GDP per capita is heterogeneous across the distribution. At lower quantiles, corresponding to less developed economies, branch density exerts a strong positive effect, suggesting that physical access to financial institutions reduces information frictions and fosters financial inclusion. In contrast, at higher quantiles, representing advanced economies, the effect weakens and in some cases becomes statistically insignificant. This pattern reflects the increasing role of digital technologies and alternative financial channels in richer countries.

The heterogeneity of effects is further examined in subsample estimations. Tables 4 (Eurozone) and 5 (rest of the world) show that the positive impact of branch density is concentrated outside the Eurozone, while within the Eurozone the relationship is weaker or non-significant.

This divergence underscores the moderating role of institutional quality and digital infrastructure in shaping how branch networks translate into development outcomes.

Turning to additional financial access indicators, ATMs emerge as a partial substitute for branches. Their effect is positive but smaller, and it is especially relevant at intermediate quantiles, where transaction services complement rather than replace branch intermediation. Credit to the private sector, by contrast, shows a more consistent positive association with GDP per capita across the distribution, though its strength also varies, with stronger effects at the lower end of development.

Additional insights are provided in Tables 6, 7, and 8, which document the temporal dynamics of the branch–growth relationship. The heterogeneous pattern becomes more pronounced after the global financial crisis: during 2008–2013 and 2014–2019, branch density remains strongly associated with growth at the lower quantiles but largely fades at the top of the distribution, particularly in the Eurozone. Robustness checks, not reported for brevity, confirm these findings under alternative specifications and institutional controls, and results remain stable across different prior distributions and measures of financial development.

6. Conclusions

This paper analyzes the role of physical bank branch networks in economic development using a large panel of 139 countries and two autonomous regions over the period 2004–2019. The analysis relies on a Bayesian Quantile Regression (BQR) framework, which captures heterogeneous effects across the income distribution and provides richer insights than mean-based approaches. This methodological choice is particularly valuable as it uncovers differences in the impact of branch networks between poorer and richer economies, as well as to deal with the existence of missing data.

The results indicate that branch density exerts a strong positive effect on economic performance in lower quantiles, suggesting that in less developed countries branches reduce information frictions and foster financial inclusion. In contrast, the effect weakens or becomes insignificant in advanced economies, where digital alternatives and mature financial markets reduce reliance on physical presence. ATMs appear as partial substitutes for branches, especially at intermediate levels of development, while credit to the private sector consistently shows a positive association across the distribution.

From a policy perspective, these findings underscore that the developmental role of bank

branches depends critically on income levels and institutional contexts. In low- and middle-income economies, policies promoting the expansion of physical banking infrastructure can contribute to inclusion and growth. By contrast, in high-income countries regulatory attention may be better directed toward digital finance, financial innovation, and competition rather than preserving large branch networks. Hence, the Bayesian quantile framework adopted also reveals that one-size-fits-all strategies are unlikely to be effective: financial sector reforms should instead be tailored to each country's position within the development distribution.

References

Abedifar, P., Kashizadeh, S. J., and Ongena, S. (2024). Flood, farms and credit: The role of branch banking in the era of climate change. Journal of Corporate Finance, page 102544.

Bernini, C. and Brighi, P. (2018). Bank branches expansion, efficiency and local economic growth. Regional Studies, 52(10):1332–1345.

Bird, R. M., Martínez-Vazquez, J., and Torgler, B. (2008). Tax effort in developing countries and high income countries: The impact of corruption, voice and accountability. Economic Analysis and Policy, 38(1):55–71.

Bonfim, D., Nogueira, G., and Ongena, S. (2021). "Sorry, we're closed" bank branch closures, loan pricing, and information asymmetries. Review of Finance, 25(4):1211–1259.

Brevoort, K. P. and Hannan, T. H. (2004). Commercial lending and distance: Evidence from community reinvestment act data. Journal of Money, Credit and Banking, 36(4):765–783.

Calomiris, C. W., Kahn, C. M., and Longhofer, S. D. (1994). Housing-finance intervention and private incentives: Helping minorities and the poor. Journal of Money, Credit and Banking, 26(3):634–674.

Cetorelli, N. (2010). Life-cycle dynamics in industrial sectors: The role of banking market structure. Review of Economic Dynamics, 13(1):155–176.

Charron, N., Lapuente, V., and Rothstein, B. (2021). Quality of government and economic growth ii: The effect of within-country variation in institutional quality. European Journal of Political Economy, 65:101–110.

Chen, M. A., Wu, Q., and Yang, B. (2019). How valuable is FinTech innovation? The Review of Financial Studies, 32(5):2062–2106.

Claessens, S. and Laeven, L. (2005). Financial dependence, banking sector competition, and economic growth. Journal of the European Economic Association, 3(1):179–207.

Danisewicz, P. and Elard, I. (2023). The real effects of financial technology: Marketplace lending and personal bankruptcy. Journal of Banking & Finance, 155:106986.

Demir, A., Pesqué-Cela, V., Altunbas, Y., and Murinde, V. (2020). Fintech, financial inclusion and income inequality: A quantile regression approach. The European Journal of Finance, pages 1–22.

Demirgüç-Kunt, A. (2010). Finance and economic development: The role of government. In Global Financial Development Report. World Bank.

Demirgüç-Kunt, A. and Levine, R. (2001). Financial Structure and Economic Growth: A Cross-Country Comparison of Banks, Markets, and Development. MIT Press.

Demirgüç-Kunt, A. and Servén, L. (2010). Financial Inclusion and Inclusive Growth. World Bank Policy Research.

DeYoung, R., Glennon, D., and Nigro, P. (2006). Borrower-lender distance, credit scoring, and loan performance: Evidence from informational-opaque small business borrowers. Journal of Financial Intermediation, 17(1):113–143.

Ergungor, O. E. (2010). Bank branch presence and access to credit in low-to moderate-income neighborhoods. Journal of Money, Credit, and Banking, 42(7):1321–1349.

Feenstra, R. C., Inklaar, R., and Timmer, M. P. (2015). The next generation of the penn world table. American Economic Review, 105(10):3150–3182.

Fuster, A., Goldsmith-Pinkham, P., Ramadorai, T., and Walther, A. (2022). Predictably unequal? The effects of machine learning on credit markets. The Journal of Finance, 77(1):5–47.

Hasan, I., Jackowicz, K., Kowalewski, O., and Kozłowski, Ł. (2019). The economic impact of changes in local bank presence. Regional Studies, 53(5):644–656.

Hegerty, S. W. (2016). Commercial bank locations and "banking deserts": A statistical analysis of Milwaukee and Buffalo. Annals of Regional Science, 56(1):253–271.

Houston, J. F., Lin, C., and Ma, Y. (2021). Bank branches and social capital. Journal of Financial Economics, 140(2):387–412.

Hunter, W. C. and Walker, M. B. (1996). The cultural affinity hypothesis and mortgage lending decisions. Journal of Real Estate Finance and Economics, 13(1):57–70.

Ibrahim, J. G., Chen, M.-H., Lipsitz, S. R., and Herring, A. H. (2005). Missing-Data Methods for Generalized Linear Models: A Comparative Review. Journal of the American Statistical Association, 100(469):332–346.

Jadhav, P. (2012). Determinants of foreign direct investment in BRICS economies: Analysis of economic, institutional and political factor. Procedia-Social and Behavioral Sciences, 37:5–14.

Jayaratne, J. and Strahan, P. E. (1996). The finance-growth nexus: Evidence from bank branch deregulation. Quarterly Journal of Economics, 111(3):639–670.

Koenker, R. and Bassett, G. (1978). Regression quantiles. Econometrica, 46(1):33–50.

Kormendi, R. C. and Meguire, P. G. (1985). Macroeconomic determinants of growth: cross-country evidence. Journal of Monetary Economics, 16(2):141–163.

Kozumi, H. and Kobayashi, G. (2011). Gibbs sampling methods for Bayesian quantile regression. Journal of Statistical Computation and Simulation, 81(11):1565–1578.

Kroszner, R. S. and Strahan, P. E. (1999). What drives deregulation? economics and politics of the relaxation of bank branching restrictions. Quarterly Journal of Economics, 114(4):1437–1467.

Levine, R. (1997). Financial development and economic growth: Views and agenda. Journal of Economic Literature, 35(2):688–726.

Levine, R. and Renelt, D. (1992). A sensitivity analysis of cross-country growth regressions. American Economic Review, 82(4):942–963.

Lunn, D., Jackson, C., Best, N., Thomas, A., and Spiegelhalter, D. (2012). The BUGS Book - A Practical Introduction to Bayesian Analysis. Chapman & Hall/CRC Press.

Madsen, J. B., Minniti, A., and Venturini, A. (2018). Wealth inequality and financial development: Evidence from european countries. World Development, 106:1–12.

Martin-Oliver, A. (2019). Financial exclusion and branch closures in Spain after the Great Recession. Regional Studies, 53(4):562–573.

Martín-Oliver, A. (2019). Banking competition, financial stability, and economic growth. SERIEs, 10(3-4):229–260.

Petersen, M. A. and Rajan, R. G. (2002). Does distance still matter? the information revolution in small business lending. Journal of Finance, 57(6):2533–2570.

Rajan, R. G. (1992). Insiders and outsiders: The choice between informed and arm's-length debt. Journal of Finance, 47(4):1367–1400.

Rioja, F. and Valev, N. (2004). Does one size fit all? A reexamination of the finance and growth relationship. Journal of Development Economics, 74(2):429–447.

Rossi, S. P. S. and Scalise, D. (2022). Financial development and economic growth: Evidence from european regions. Regional Studies, 56(3):403–417.

Schuetz, J., Kolko, J., and Meltzer, R. (2012). Are poor neighborhoods "retail deserts"? Regional Science and Urban Economics, 42(1):269–285.

Sharpe, S. A. (1990). Asymmetric information, bank lending, and implicit contracts: A stylized model of customer relationships. Journal of Finance, 45(4):1069–1087.

Stiglitz, J. E. and Weiss, A. (1981). Credit rationing in markets with imperfect information. American Economic Review, 71(3):393–410.

Tanzi, V. and Davoodi, H. (1997). Corruption, public investment, and growth. IMF Working Paper.

Uddin, M. A., Ali, M. H., and Masih, M. (2017). Political stability and growth: An application of dynamic GMM and quantile regression. Economic Modelling, 64:610–625.

Von Thadden, E.-L. (2004). Asymmetric information, bank lending and implicit contracts. Journal of Financial Intermediation, 13(1):77–100.

Yu, K. and Moyeed, R. A. (2001). Bayesian quantile regression. Statistics & Probability Letters, 54(4):437–447.

Table 1: Definition of the relevant variables

VARIABLE	LITERATURE	SOURCE	DEFINITION AND MEASUREMENT
Trade	Kormendi and Meguire (1985), Levine and Renelt (1992), Bird et al. (2008), Jadhav (2012), Uddin et al. (2017), Demir et al. (2020)	World Bank national accounts data, and OECD National Accounts data files	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product
Inflation	Kormendi & Meguire (1985), Levine & Renelt (1992), Jadhav (2012), Demir et al. (2020)	World Bank and International Monetary Fund - International Financial Statistics and data files	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly
StockExchange	Rossi & Scalise (2021)	African Stock Exchanges Association; World-stock-exchanges.net; Wikipedia; ICEX España Exportación e Inversiones	Dummy variable that takes value 1 if the country has a stock exchange, and value 0 otherwise
PopulationGrowthRate	Kormendi & Meguire (1985), Levine & Renelt (1992), Bird et al. (2008), Demir et al. (2020)	Authors' calculations using population data from Groningen Growth and Development Centre - University of Groningen	Population growth rate (annual %)
Employment	Barro et al. (1991), Avery (1991), Rossi & Scalise (2021)	Groningen Growth and Development Centre - University of Groningen	Number of persons engaged (in millions)
HC	Razin (1976), Hicks & Streeten (1979), Landau (1986), Blum & Blanchet (1988), Levine & Renelt (1992), Pagano (1993), Demir et al. (2020), Rossi & Scalise (2021)	Groningen Growth and Development Centre - University of Groningen	Human capital index, based on years of schooling and returns to education
GDPpc	Barro et al. (1991), Tanzi & Davoodi (1997), Beck et al. (2005), Bird et al. (2008), Swamy (2010), Uddin et al. (2017), Cox & Weingast (2018), Heras Recuero & Pascual González (2019)	Authors' calculations using GDP and population data from Groningen Growth and Development Centre - University of Groningen	Expenditure-side real GDP per capita at current PPPs (in mil. 2017US$). Logarithmic terms
CapitalStock	Pagano (1993)	Groningen Growth and Development Centre - University of Groningen	Capital stock at current PPPs (in mil. 2017US$)
Branches	Avery (1991), Beck et al. (2005), Swamy (2010), Rossi & Scalise (2021)	World Bank and International Monetary Fund - Financial Access Survey	Data are shown as the number of branches of commercial banks for every 100,000 adults in the reporting country. It is calculated as (number of institutions + number of branches)×100,000/adult population in the reporting country
ATMs	Beck et al. (2005), Swamy (2010)	World Bank and International Monetary Fund - Financial Access Survey	Data are shown as the total number of ATMs for every 100,000 adults in the reporting country. Calculated as (number of ATMs)×100,000/adult population in the reporting country
CreditPS	Levine & Renelt (1992), Beck et al. (2005), Swamy (2010), Heras Recuero & Pascual González (2019)	International Monetary Fund - International Financial Statistics and data files, and World Bank and OECD GDP estimates	Financial resources provided to the private sector by other depository corporations (deposit taking corporations except central banks), such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises (% of GDP)
$C+I$	Khan & Reinhart (1990), Makuyana & Odhiambo (2016), Radulescu et al. (2019)	Groningen Growth and Development Centre - University of Groningen	Real domestic absorption, (real consumption plus investment), at current PPPs (in mil. 2017US$)
ControlofCorruption	Tanzi & Davoodi (1997), Bird et al. (2008), Jadhav (2012), Uddin et al. (2017), Heras Recuero & Pascual González (2019)	Control of Corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Percentile rank, with 0 corresponding to lowest rank, and 100 to highest rank.	
GovernmentEffectiveness	Uddin et al. (2017), Heras Recuero & Pascual González (2019)	World Development Indicators - The World Bank	Government Effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Percentile rank, with 0 corresponding to lowest rank, and 100 to highest rank
PoliticalStability	Paldam (1998), Jadhav (2012), Uddin et al. (2017), Cox & Weingast (2018)	World Development Indicators - The World Bank	Political Stability measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. Percentile rank, with 0 corresponding to lowest rank, and 100 to highest rank
RegulatoryQuality	Jadhav (2012), Uddin et al. (2017), Heras Recuero & Pascual González (2019)	World Development Indicators - The World Bank	Regulatory Quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Percentile rank, with 0 corresponding to lowest rank, and 100 to highest rank.
RuleofLaw	Jadhav (2012), Uddin et al. (2017), Heras Recuero & Pascual González (2019)	World Development Indicators - The World Bank	Rule of Law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Percentile rank, with 0 corresponding to lowest rank, and 100 to highest rank.
VoiceandAccountability	Bird et al. (2008), Jadhav (2012), Cox & Weingast (2018)	World Development Indicators - The World Bank	Voice and Accountability captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Percentile rank, with 0 corresponding to lowest rank, and 100 to highest rank.

Table 2: Descriptive statistics for the relevant variables (see Table 1 for details)

World

	Mean		Median		Max		Min		Std.dev.	
Variable	2004	2019	2004	2019	2004	2019	2004	2019	2004	2019
GDPpc	$16,321.43	$23,395.55	$8,743.84	$13,011.98	$106,104.26	$112,564.21	$592.11	$251.36	$19,194.51	$24,079.10
Branches	17.67	16.62	10.95	13.45	110.94	64.49	0.31	0.42	20.62	12.78
ATMs	37.75	59.48	25.44	49.00	208.16	322.70	0.00	1.62	44.99	53.33
CreditPS	41.80%	56.45%	26.41%	48.65%	157.80%	237.47%	0.19%	6.03%	39.12%	41.54%
ControlofCorruption	49.26%	49.19%	48.29%	46.63%	100.00%	100.00%	0.98%	1.44%	29.85%	28.84%
GovernmentEffectiveness	51.76%	51.92%	50.25%	52.88%	100.00%	100.00%	0.99%	0.48%	29.24%	29.15%
PoliticalStability	45.33%	44.92%	43.20%	44.34%	100.00%	99.53%	0.00%	0.00%	28.23%	27.18%
RegulatoryQuality	52.77%	52.77%	51.23%	52.40%	100.00%	100.00%	0.00%	0.48%	28.58%	28.99%
RuleofLaw	49.33%	49.96%	48.33%	47.12%	100.00%	100.00%	0.48%	0.48%	29.47%	28.88%
VoiceandAccountability	49.80%	48.94%	47.60%	45.89%	100.00%	100.00%	0.00%	1.45%	29.47%	28.04%
Trade	85.80%	89.16%	73.07%	74.08%	401.52%	381.52%	0.33%	26.20%	55.79%	58.46%
Inflation	6.72%	5.10%	3.72%	2.45%	133.00%	87.50%	-3.10%	-3.23%	12.83%	10.37%
GrowthRatePop	1.48%	1.23%	1.38%	1.23%	10.49%	3.87%	-1.17%	-1.49%	1.54%	1.09%
Employment	19.22	22.91	3.96	5.13	758.61	798.81	0.09	0.13	75.14	80.54
HC	2.40	2.72	2.38	2.78	3.62	4.35	1.11	1.22	0.69	0.70
CapitalStock	US$1,808,643.84	US$3,910,727.28	US$218,562.20	US$524,603.06	US$54,572,780.00	US$101,544,168.00	US$2,817.89	US$9,956.21	US$5,627,809.71	US$11,337,474.70
C + I	US$494,227.62	US$860,834.34	US$74,750.71	US$153,565.98	US$16,446,173.00	US$21,383,552.00	US$2,311.41	US$2,915.57	US$1,636,407.54	US$2,620,455.90

Europe

	Mean		Median		Max		Min		Std.dev.	
Variable	2004	2019	2004	2019	2004	2019	2004	2019	2004	2019
GDPpc	$28,840.63	$43,405.22	$29,861.26	$40,626.20	$77,150.93	$112,564.21	$3,087.09	$8,695.43	$15,512.03	$21,329.40
Branches	39.63	25.45	31.59	24.24	110.94	64.49	3.71	0.42	26.31	14.46
ATMs	62.23	77.94	59.14	65.63	145.72	171.96	4.23	29.99	37.00	38.02
CreditPS	73.23%	72.37%	66.60%	70.82%	157.80%	159.72%	0.19%	19.80%	45.97%	35.52%
ControlofCorruption	75.07%	74.30%	82.44%	74.52%	100.00%	99.52%	14.63%	25.48%	23.18%	21.31%
GovernmentEffectiveness	78.73%	78.59%	80.30%	81.73%	100.00%	99.52%	18.72%	37.98%	19.66%	16.84%
PoliticalStability	68.57%	69.06%	69.90%	68.40%	100.00%	99.53%	28.64%	8.96%	20.91%	17.85%
RegulatoryQuality	80.58%	82.09%	84.24%	83.17%	99.51%	98.08%	36.95%	42.31%	16.96%	13.12%
RuleofLaw	76.72%	78.01%	81.34%	82.21%	100.00%	100.00%	26.32%	25.48%	21.74%	19.09%
VoiceandAccountability	81.69%	79.52%	87.02%	81.16%	100.00%	100.00%	28.37%	42.03%	18.78%	17.01%
Trade	98.84%	125.50%	90.79%	107.78%	281.21%	381.52%	47.43%	60.11%	46.86%	65.27%
Inflation	3.60%	1.98%	2.29%	1.74%	12.52%	7.89%	0.19%	0.25%	3.21%	1.47%
GrowthRatePop	0.23%	0.11%	0.29%	0.17%	1.96%	1.90%	-1.17%	-1.49%	0.71%	0.66%
Employment	7.14	7.73	3.14	3.42	38.97	44.80	0.15	0.19	9.46	10.45
HC	3.08	3.37	3.04	3.40	3.61	3.85	2.23	2.51	0.30	0.28
CapitalStock	US$1,873,888.02	US$3,850,365.33	US$777,530.25	US$1,723,067.25	US$12,275,993.00	US$20,907,856.00	US$27,342.74	US$62,440.54	US$2,905,785.84	US$5,685,909.84
C + I	US$474,375.96	US$676,225.96	US$197,680.41	US$311,503.19	US$2,933,727.25	US$4,048,756.25	US$10,353.86	US$17,742.03	US$739,201.25	US$985,795.14

Rest of the world

	Mean		Median		Max		Min		Std.dev.	
Variable	2004	2019	2004	2019	2004	2019	2004	2019	2004	2019
GDPpc	$12,187.73	$16,788.59	$5,348.06	$8,768.01	$106,104.26	$105,099.36	$592.11	$251.36	$18,487.60	$21,099.17
Branches	9.71	13.14	6.98	10.41	40.01	63.89	0.31	1.63	9.50	10.11
ATMs	27.31	52.01	10.14	39.28	208.16	322.7	0.00	1.62	44.03	56.71
CreditPS	32.52%	50.63%	22.15%	39.91%	144.76%	237.47%	1.07%	6.03%	31.31%	42.06%
ControlofCorruption	40.74%	40.89%	36.59%	36.30%	99.02%	100.00%	0.98%	1.44%	26.75%	26.07%
GovernmentEffectiveness	42.86%	43.12%	41.63%	38.70%	96.55%	100.00%	0.99%	0.48%	26.27%	26.91%
PoliticalStability	37.66%	36.95%	34.71%	34.20%	99.03%	97.64%	0.00%	0.00%	26.05%	24.94%
RegulatoryQuality	43.59%	43.09%	42.61%	41.59%	100.00%	100.00%	0.00%	0.48%	25.53%	26.15%
RuleofLaw	40.28%	40.70%	37.32%	37.26%	97.13%	98.08%	0.48%	0.48%	25.88%	25.37%
VoiceandAccountability	39.26%	38.85%	38.22%	35.99%	97.12%	98.07%	0.00%	1.45%	24.33%	23.24%
Trade	81.24%	76.32%	69.90%	63.17%	401.52%	353.79%	0.33%	26.20%	57.90%	49.87%
Inflation	7.76%	6.13%	4.43%	2.78%	133.00%	87.50%	-3.10%	-3.23%	14.55%	11.75%
GrowthRatePop	1.89%	1.60%	1.71%	1.45%	10.49%	3.87%	-0.61%	-1.29%	1.51%	0.93%
Employment	23.21	27.92	4.52	6.49	758.61	798.81	0.09	0.13	86.12	92.15
HC	2.18	2.50	2.19	2.61	3.62	4.35	1.11	1.22	0.63	0.66
CapitalStock	US$1,787,100.96	US$3,930,658.12	US$133,612.17	US$348,422.17	US$54,572,780.00	US$101,544,168.00	US$2,817.89	US$9,956.21	US$6,272,177.46	US$12,661,112.76
C + I	US$500,782.41	US$921,789.93	US$45,023.79	US$110,530.05	US$16,446,173.00	US$21,383,552.00	US$2,311.41	US$2,915.57	US$1,838,864.98	US$2,966,189.80

Table 3: Full sample, levels, 2004–2019

		Quantile (τ)				
Type of variable	Parameter	0.10	0.25	0.50	0.75	0.90
	α	5.4601276(1.0000)	5.5200513(1.0000)	5.8754294(1.0000)	6.3689262(1.0000)	6.5838279(1.0000)
Financial development variables	*Branches*	0.0044085(1.0000)	0.0072973(1.0000)	0.0088704(1.0000)	0.0075291(1.0000)	0.0118399(1.0000)
	ATMs	0.0017156(1.0000)	0.0016778(1.0000)	0.0018974(1.0000)	0.0026735(1.0000)	0.0014156(1.0000)
	CreditPS	0.2302447(1.0000)	0.1022785(0.9999)	−0.0569693(0.0302)	−0.1514884(0.0000)	−0.117246(0.0007)
	StockExchange	0.3852068(1.0000)	0.4645641(1.0000)	0.5203313(1.0000)	0.3777694(1.0000)	0.3338568(1.0000)
Quality of government variables	*ControlofCorruption*	0.7333177(1.0000)	1.0632763(1.0000)	0.6845374(1.0000)	0.5261782(1.0000)	0.0750907(0.7117)
	GovernmentEffectiveness	1.7404572(1.0000)	1.8656661(1.0000)	2.1976742(1.0000)	1.9916603(1.0000)	1.8939187(1.0000)
	PoliticalStability	0.1736883(0.9996)	0.142214(0.9948)	0.3326374(1.0000)	0.3832661(1.0000)	0.5116402(1.0000)
	RegulatoryQuality	0.1408613(0.9292)	0.6551361(1.0000)	0.5125206(0.9997)	0.1883999(0.9413)	0.0441306(0.6428)
	RuleofLaw	−0.9309102(0.0000)	−1.2109757(0.0000)	−0.8285552(0.0000)	−0.1209588(0.2062)	0.2014706(0.8441)
	VoiceandAccountability	0.1301836(0.9632)	−0.3835246(0.0000)	−0.921057(0.0000)	−1.3792751(0.0000)	−1.5843608(0.0000)
Macroeconomic controls	*Trade*	−0.0656034(0.0000)	0.1031849(1.0000)	0.0735576(1.0000)	0.0416900(1.0000)	0.0240942(0.9978)
	Inflation	−0.1768945(0.0000)	−0.0975060(0.0048)	−0.0140320(0.3228)	0.0096471(0.6698)	−0.0176978(0.3933)
	GrowthRatePop	−4.7948158(0.0000)	−1.5942527(0.0462)	6.2590152(1.0000)	11.4818116(1.0000)	15.8060722(1.0000)
	Employment	−0.0208198(0.0352)	−0.0429440(0.0009)	−0.0794430(0.0000)	−0.1150311(0.0000)	−0.1217347(0.0000)
	HC	0.6745568(1.0000)	0.6011927(1.0000)	0.5861953(1.0000)	0.6746572(1.0000)	0.7957708(1.0000)
	CapitalStock	−0.0008024(0.0036)	0.0000391(0.5242)	0.0021602(0.9993)	0.0022991(0.9999)	0.0012091(0.9796)
	C_I	0.0046603(0.9993)	0.0017567(0.8747)	−0.0055865(0.0082)	−0.0067023(0.0017)	−0.0045209(0.0168)
	σ	0.2758257(1.0000)	0.3856654(1.0000)	0.4478404(1.0000)	0.4008483(1.0000)	0.2940167(1.0000)

Table 4: Eurozone, levels, 2004–2019

Type of variable	Parameter	$\tau = 0.10$	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	$\tau = 0.90$
	α	3.6068307(0.5207)	3.9456784(0.5216)	3.9687777(0.5171)	4.501726(0.5192)	3.228947(0.5174)
Financial development variables	*Branches*	0.0007793(0.8399)	0.0004695(0.7426)	0.0010565(0.9195)	0.0013995(0.9954)	−0.0005584(0.2006)
	ATMs	0.0003711(0.7419)	−0.0002066(0.2722)	0.0000573(0.4277)	0.0005166(0.9761)	0.0004352(0.9686)
	CreditPS	0.0892831(0.9895)	0.0282282(0.8334)	0.0135515(0.6770)	−0.0047167(0.4153)	−0.1273864(0)
	StockExchange	4.0206114(0.5198)	4.2608877(0.5218)	4.2768053(0.5253)	3.7086964(0.5258)	6.1575546(0.5367)
Quality of government variables	*ControlofCorruption*	0.0170617(0.5206)	−0.0399963(0.4494)	−0.3418684(0.1477)	−0.4521482(0.0206)	−0.1157718(0.2797)
	GovernmentEffectiveness	1.4197999(1.0000)	0.5603274(0.9845)	−0.5623325(0.0468)	−0.5228731(0.0403)	−0.2474694(0.1903)
	PoliticalStability	−0.0574327(0.2527)	−0.0131487(0.4452)	0.0650149(0.7388)	−0.0025035(0.4927)	−0.2031116(0.0051)
	RegulatoryQuality	−0.5998024(0.0079)	−0.081721(0.3499)	0.5357730(0.9771)	0.7175097(0.9993)	0.916295(0.9986)
	RuleofLaw	−0.7961149(0.0094)	0.2552592(0.7747)	0.7229248(0.9515)	0.3195947(0.8292)	0.3377988(0.8742)
	VoiceandAccountability	2.0042232(1.0000)	1.3554526(0.9999)	1.5627553(1.0000)	1.5642361(1.0000)	0.4494619(0.9451)
Macroeconomic controls	*Trade*	0.0164784(0.8453)	0.1207911(1.0000)	0.201346(1.0000)	0.2031264(1.0000)	0.2660457(1.0000)
	Inflation	−0.0426107(0.4311)	−0.0101877(0.4366)	0.1222569(0.593)	0.1101040(0.6361)	0.0199722(0.5784)
	GrowthRatePop	4.9042853(0.9939)	5.9278939(1.0000)	4.8614022(0.9983)	5.4241278(0.9998)	7.7813319(1.0000)
	Employment	−1.6566784(0.0048)	−1.0383680(0.0382)	−1.8066340(0.0069)	−2.9982365(0.0000)	−3.520469(0.0000)
	HC	0.2702023(1.0000)	0.0922613(0.9812)	0.0865131(0.9112)	0.2111786(1.0000)	0.0257828(0.6537)
	CapitalStock	0.0025808(0.9997)	0.0040308(1.0000)	0.003504(1.0000)	0.0018530(0.9982)	0.0007818(0.9241)
	C_I	0.0072428(0.7832)	−0.0044907(0.2955)	0.0073361(0.7362)	0.0261936(0.9929)	0.0394549(0.9994)
	σ	0.1512381(1.0000)	0.2130564(1.0000)	0.2377806(1.0000)	0.1996851(1.0000)	0.1436918(1.0000)

Table 5: Rest of the world, levels, 2004–2019

Type of variable	Parameter	$\tau = 0.10$	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	$\tau = 0.90$
	α	5.4472593(1.0000)	5.6750508(1.0000)	5.722805(1.0000)	6.1986416(1.0000)	6.2567268(1.0000)
Financial development variables	*Branches*	0.0031740(1.0000)	0.0042861(1.0000)	0.0071566(1.0000)	0.0086687(1.0000)	0.0076955(1.0000)
	ATMs	0.0017965(1.0000)	0.0016364(1.0000)	0.0016947(1.0000)	0.0027365(1.0000)	0.0023996(1.0000)
	CreditPS	0.2554701(1.0000)	0.1636339(1.0000)	−0.0353068(0.1774)	−0.2177842(0.0000)	−0.2464756(0.0000)
	StockExchange	0.3998249(1.0000)	0.4627652(1.0000)	0.5374566(1.0000)	0.3751031(1.0000)	0.4117215(1.0000)
Quality of government variables	*ControlofCorruption*	0.7941492(1.0000)	1.2310721(1.0000)	0.8472577(1.0000)	0.7248707(1.0000)	0.412405(0.9987)
	GovernmentEffectiveness	1.6972488(1.0000)	1.8963536(1.0000)	2.0171286(1.0000)	2.0812982(1.0000)	1.8918128(1.0000)
	PoliticalStability	0.2214095(0.9999)	0.3524877(1.0000)	0.3078517(1.0000)	0.3451851(1.0000)	0.6041081(1.0000)
	RegulatoryQuality	0.118595(0.8820)	0.7047257(1.0000)	0.4270158(0.9944)	0.0602525(0.6842)	−0.0042845(0.4728)
	RuleofLaw	−1.0369523(0.0000)	−1.3866475(0.0000)	−0.8112359(0.0000)	−0.286955(0.0494)	−0.0476511(0.4178)
	VoiceandAccountability	0.0830563(0.8597)	−0.9051981(0.0000)	−1.2222764(0.0000)	−1.5427996(0.0000)	−1.7021558(0.0000)
Macroeconomic controls	*Trade*	−0.0787427(0.0000)	−0.0596885(0.0000)	0.0576895(0.9986)	0.0476096(1.0000)	0.0343228(1.0000)
	Inflation	−0.1553997(0.0000)	−0.0879365(0.0444)	−0.0194627(0.2427)	0.0057789(0.6479)	0.0067245(0.6066)
	GrowthRatePop	−4.3197408(0.0000)	−2.5891049(0.0073)	6.8703459(1.0000)	13.3725095(1.0000)	21.5680672(1.0000)
	Employment	−0.024146(0.0244)	−0.0686851(0.0001)	−0.0660282(0.0002)	−0.0773844(0.0001)	−0.0763845(0.0003)
	HC	0.6944906(1.0000)	0.656905(1.0000)	0.7299565(1.0000)	0.7669328(1.0000)	0.8746325(1.0000)
	CapitalStock	−0.0013965(0.0001)	−0.0012878(0.0008)	−0.0005772(0.1914)	−0.0003394(0.3355)	−0.0008540(0.1537)
	C_I	0.0070109(0.9999)	0.0066399(1.0000)	0.0036607(0.9326)	0.0018779(0.7338)	0.0027860(0.8270)
	σ	0.279978(1.0000)	0.3947735(1.0000)	0.4584341(1.0000)	0.4089436(1.0000)	0.2973728(1.0000)

Table 6: Full sample, levels, subperiods

		2004–2007				
Type of variable	Parameter	$\tau = 0.10$	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	$\tau = 0.90$
Financial development variables	*Branches*	0.0043586(0.9999)	0.0076422(1.0000)	0.0090644(1.0000)	0.0101348(1.0000)	0.0108313(1.0000)
	ATMs	0.0023213(1.0000)	0.0018522(0.9968)	0.0014651(0.9873)	0.0020260(0.9988)	0.0026992(0.9833)
	CreditPS	0.2078467(1.0000)	−0.005916(0.4598)	−0.0459231(0.2463)	−0.1381369(0.0516)	−0.2192731(0.0160)
	StockExchange	0.4075593(1.0000)	0.5348207(1.0000)	0.3723263(1.0000)	0.3338355(0.9998)	0.1582094(0.9708)
Quality of government variables	*ControlofCorruption*	0.8033663(1.0000)	1.1982792(1.0000)	1.0056899(0.9999)	1.7962989(1.0000)	1.2178629(1.0000)
	GovernmentEffectiveness	1.9108270(1.0000)	2.5655464(1.0000)	1.6077970(1.0000)	1.4906375(0.9997)	1.3023706(0.9997)
	PoliticalStability	0.3821509(0.9998)	0.4074369(0.9996)	0.444662(0.9999)	0.6040599(0.9997)	0.6084261(0.9997)
	RegulatoryQuality	0.3854619(0.9678)	0.6103324(0.9782)	1.2872563(1.0000)	0.5448226(0.9540)	0.5900587(0.9786)
	RuleofLaw	−1.3587246(0.0000)	−1.9725948(0.0000)	−1.1604553(0.0004)	−1.1575569(0.0011)	−0.4424607(0.1173)
	VoiceandAccountability	0.0674015(0.7007)	−0.5008741(0.0029)	−1.0546871(0.0000)	−1.5395683(0.0000)	−1.9940230(0.0000)
	σ	0.2657464(1.0000)	0.3850173(1.0000)	0.4466973(1.0000)	0.4046489(1.0000)	0.2970677(1.0000)
		2008–2013				
Type of variable	Parameter	$\tau = 0.10$	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	$\tau = 0.90$
Financial development variables	*Branches*	0.0058872(1.0000)	0.0098267(1.0000)	0.0096761(1.0000)	0.0083448(1.0000)	0.0093303(0.9997)
	ATMs	0.001389(1.0000)	0.0017780(1.0000)	0.0028380(1.0000)	0.0033710(1.0000)	0.0061891(1.0000)
	CreditPS	0.1464326(1.0000)	0.0261241(0.7164)	−0.0640386(0.0962)	−0.1968574(0.0001)	−0.2019401(0.0003)
	StockExchange	0.3737833(1.0000)	0.5403062(1.0000)	0.5935033(1.0000)	0.2092207(0.9971)	0.3065252(0.9998)
Quality of government variables	*ControlofCorruption*	0.7438592(0.9996)	1.2845165(1.0000)	0.8193018(0.9999)	0.8580267(0.9999)	0.3066380(0.9017)
	GovernmentEffectiveness	1.7353841(1.0000)	1.5860182(1.0000)	2.1318348(1.0000)	2.3028236(1.0000)	2.0477796(1.0000)
	PoliticalStability	0.1429963(0.9213)	0.1142552(0.8989)	0.197966(0.9304)	0.1408869(0.8635)	0.4877702(0.9997)
	RegulatoryQuality	0.1441944(0.8353)	0.5469819(0.9991)	0.2156115(0.8062)	−0.5662155(0.0058)	−0.5776132(0.0051)
	RuleofLaw	−0.7158875(0.0000)	−0.9315595(0.0001)	−0.8432896(0.0018)	0.0222702(0.5361)	−0.0616634(0.4255)
	VoiceandAccountability	−0.0135862(0.4582)	−0.6254131(0.0000)	−0.9983662(0.0000)	−1.506449(0.0000)	−1.3981222(0.0000)
	σ	0.2775894(1.0000)	0.3858216(1.0000)	0.4533662(1.0000)	0.4052368(1.0000)	0.2934646(1.0000)
		2014–2019				
Type of variable	Parameter	$\tau = 0.10$	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	$\tau = 0.90$
Financial development variables	*Branches*	0.0049299(0.9998)	0.0056294(1.0000)	0.0080058(1.0000)	0.0080228(1.0000)	0.0062125(0.9998)
	ATMs	0.0015119(1.0000)	0.0009407(0.9990)	0.0013487(0.9996)	0.0015351(0.9998)	0.0025534(1.0000)
	CreditPS	0.2620852(1.0000)	0.1126700(0.9942)	−0.0524460(0.1106)	−0.0393904(0.2618)	0.0431483(0.8316)
	StockExchange	0.3520945(1.0000)	0.2601800(1.0000)	0.4193035(1.0000)	0.4343291(1.0000)	0.5487885(1.0000)
Quality of government variables	*ControlofCorruption*	0.8156537(1.0000)	0.6462233(0.9999)	0.2681471(0.8931)	−0.3719576(0.0294)	−0.3906933(0.0221)
	GovernmentEffectiveness	1.3161430(1.0000)	2.3503356(1.0000)	3.1534784(1.0000)	1.9704133(1.0000)	1.5250169(1.0000)
	PoliticalStability	0.0556389(0.7019)	0.3045247(1.0000)	0.1540253(0.9227)	0.5142098(1.0000)	0.4997418(1.0000)
	RegulatoryQuality	0.4116833(0.9875)	0.3744067(0.9687)	0.2162531(0.8601)	0.3964861(0.9911)	0.3290076(0.9578)
	RuleofLaw	−0.6771147(0.0009)	−0.7239145(0.0006)	−0.8429187(0.0007)	0.5354856(0.9936)	0.7290428(0.9926)
	VoiceandAccountability	0.0343584(0.6004)	−0.5564588(0.0001)	−0.6526026(0.0000)	−1.2210936(0.0000)	−1.3363474(0.0000)
	σ	0.2670919(1.0000)	0.3702091(1.0000)	0.4283029(1.0000)	0.3795518(1.0000)	0.2737256(1.0000)

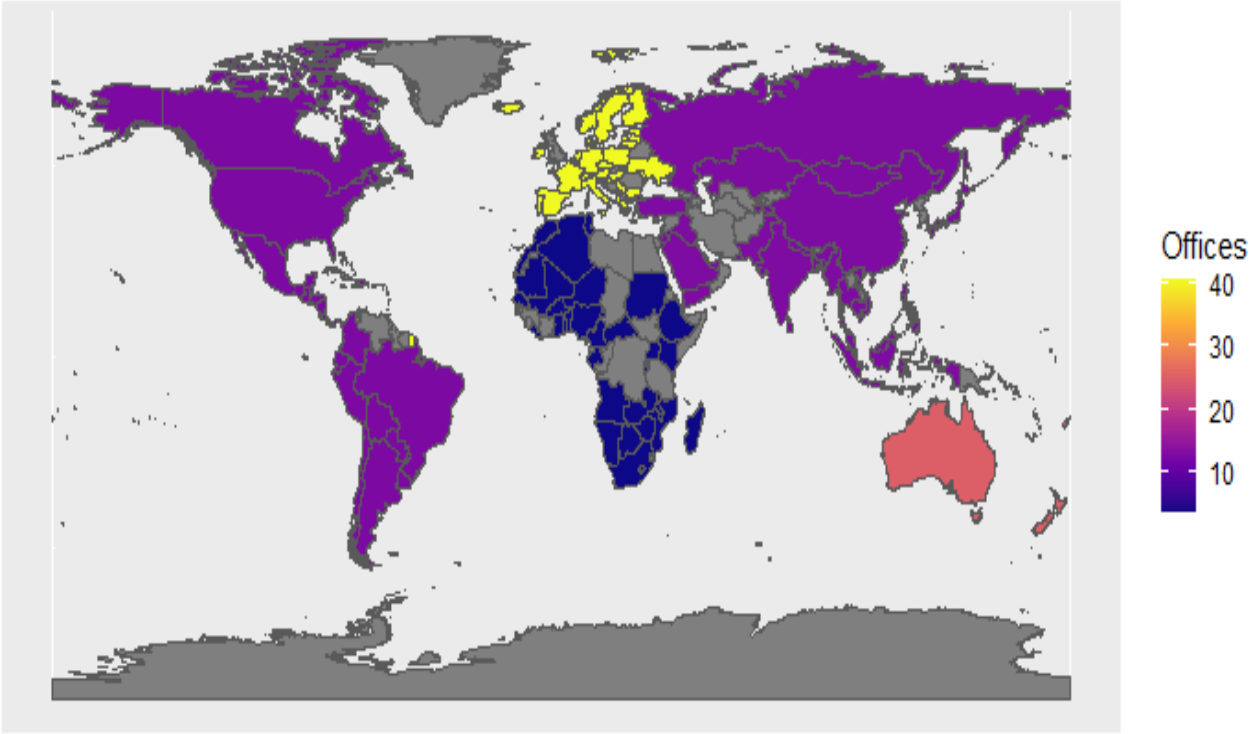
Table 7: Eurozone, levels, subperiods

		2004–07				
Type of variable	Parameter	$\tau = 0.10$	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	$\tau = 0.90$
Financial development variables	*Branches*	0.0011799(0.8262)	0.0007618(0.7187)	0.0011559(0.7879)	0.0009249(0.7748)	0.0009901(0.8194)
	ATMs	−0.0004473(0.2515)	−0.0000786(0.4603)	0.0000668(0.5189)	−0.0000763(0.3996)	−0.0002458(0.2664)
	CreditPS	−0.0633602(0.2062)	−0.0622978(0.2144)	−0.0140058(0.4313)	−0.0227761(0.3674)	−0.031807(0.3308)
	StockExchange	3.826463(0.5225)	3.8376461(0.5224)	4.8311081(0.5252)	5.1804803(0.5269)	4.9118396(0.5318)
Quality of government variables	*ControlofCorruption*	−0.5605932(0.1661)	−0.496268(0.1636)	−0.3784913(0.2179)	−0.3766001(0.1447)	−0.3819884(0.1174)
	GovernmentEffectiveness	−1.2612391(0.0079)	−1.4292769(0.0023)	−1.4345828(0.0033)	−1.0082163(0.0456)	−0.83879(0.1146)
	PoliticalStability	0.0630732(0.6696)	0.0449599(0.5789)	0.2061799(0.8389)	0.1645152(0.8587)	0.162244(0.8727)
	RegulatoryQuality	2.3209089(0.9999)	2.2748893(0.9996)	1.4581279(0.9921)	1.1407611(0.98)	1.0274029(0.9557)
	RuleofLaw	0.5428798(0.8636)	0.5537801(0.8897)	0.630757(0.9278)	0.5812043(0.8869)	0.5953376(0.8696)
	VoiceandAccountability	0.2433059(0.5768)	0.1998624(0.5795)	0.2717505(0.6396)	0.1833154(0.6021)	0.230532(0.6664)
	σ	0.0971996(1.0000)	0.1415043(1.0000)	0.1602406(1.0000)	0.1312391(1.0000)	0.0905676(1.0000)
		2008–13				
Type of variable	Parameter	$\tau = 0.10$	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	$\tau = 0.90$
Financial development variables	*Branches*	0.0028554(0.9598)	0.00209(0.9106)	0.0033603(0.9270)	0.0056898(0.9999)	0.0074133(0.9999)
	ATMs	0.0007721(0.7973)	0.0010776(0.871)	0.0008717(0.8176)	0.0007523(0.8198)	0.0010891(0.9586)
	CreditPS	0.0378772(0.6789)	0.084945(0.8398)	0.1204353(0.9148)	0.097215(0.9207)	0.0619783(0.8201)
	StockExchange	3.8689487(0.5221)	2.892056(0.5177)	2.8082411(0.5164)	3.4058466(0.5206)	2.1859896(0.5106)
Quality of government variables	*ControlofCorruption*	1.0839116(0.9579)	0.7968255(0.9286)	−0.0271198(0.4907)	−1.3117398(0.0098)	−0.8769937(0.027)
	GovernmentEffectiveness	0.6613734(0.8886)	0.8677425(0.9503)	0.337168(0.7186)	−0.2236237(0.3357)	−0.0718328(0.4272)
	PoliticalStability	0.3313(0.9707)	0.248351(0.9108)	0.1506209(0.7271)	0.0283848(0.5573)	−0.0554996(0.3918)
	RegulatoryQuality	0.28331(0.7129)	0.1196048(0.5908)	0.4562699(0.7588)	1.7377225(0.9971)	2.1485949(0.9996)
	RuleofLaw	−1.5448244(0.0151)	−1.6484717(0.0054)	−0.8724008(0.1564)	0.5808847(0.8075)	0.3533059(0.766)
	VoiceandAccountability	1.7929441(0.9838)	2.3685711(0.9964)	2.9295868(0.9989)	1.9267946(0.9966)	1.1526629(0.96)
	σ	0.136242(1)	0.1995011(1)	0.2470134(1)	0.2067506(1)	0.1391817(1)
		2014–19				
Type of variable	Parameter	$\tau = 0.10$	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	$\tau = 0.90$
Financial development variables	*Branches*	0.0000704(0.5363)	−0.0022318(0.1018)	−0.0036117(0.0315)	−0.0029736(0.0223)	−0.003759(0.0027)
	ATMs	0.0005863(0.8860)	0.0006029(0.9098)	0.0004762(0.8693)	0.0004005(0.8592)	0.0001637(0.6770)
	CreditPS	0.0321896(0.7273)	0.0516622(0.8526)	0.0180186(0.6732)	−0.0947696(0.0123)	−0.1366593(0.0010)
	StockExchange	3.9215727(0.5227)	4.0407227(0.5254)	5.084387(0.5307)	4.4527175(0.5244)	5.0849182(0.5334)
Quality of government variables	*ControlofCorruption*	−0.7019284(0.0664)	−0.8153959(0.0232)	−0.0799407(0.4208)	0.3712293(0.8468)	0.3982061(0.8602)
	GovernmentEffectiveness	2.3296413(1.0000)	2.1918519(0.9999)	1.241481(0.9612)	0.4777678(0.7791)	0.546834(0.8733)
	PoliticalStability	−0.1635718(0.1539)	−0.2718959(0.0451)	−0.2736081(0.0581)	−0.4414112(0.0134)	−0.3655818(0.0209)
	RegulatoryQuality	0.6786651(0.9356)	0.3392276(0.7848)	0.4588214(0.8571)	0.708952(0.9323)	0.1564084(0.6207)
	RuleofLaw	0.0670138(0.5415)	0.7069164(0.8742)	0.4635544(0.7632)	−0.0234013(0.4777)	0.0395013(0.5541)
	VoiceandAccountability	−0.0798731(0.4422)	−0.30031(0.2859)	−0.5103007(0.2383)	0.1533646(0.5896)	0.5513168(0.8681)
	σ	0.1369232(1.0000)	0.193376(1.0000)	0.2253966(1.0000)	0.1951291(1.0000)	0.1331286(1.0000)

Table 8: Rest of the world, levels, subperiods

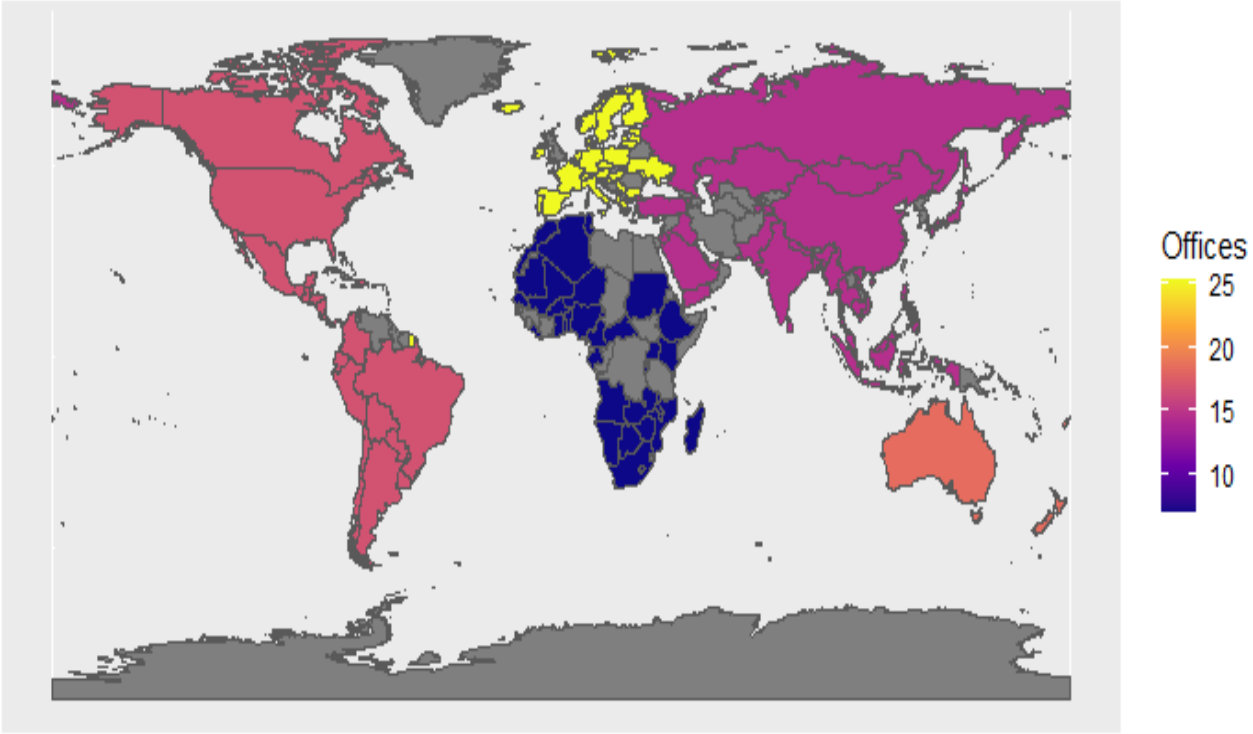
2004–2007						
Type of variable	Parameter	$\tau = 0.10$	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	$\tau = 0.90$
Financial development variables	*Branches*	0.0028922(0.9926)	0.0065732(0.9998)	0.0098984(1.0000)	0.013119(1.0000)	0.0108632(1.0000)
	ATMs	0.0020435(1.0000)	0.0019326(0.9973)	0.001749(0.9868)	0.0017632(0.9907)	0.0022295(0.9754)
	CreditPS	0.2584828(1.0000)	0.0480476(0.7354)	−0.0655133(0.1962)	−0.2065691(0.0128)	−0.2727704(0.0019)
	StockExchange	0.4305826(1.0000)	0.5502556(1.0000)	0.3857009(1.0000)	0.3415244(0.9999)	0.2480398(0.9909)
Quality of government variables	*ControlofCorruption*	0.8807627(1.0000)	1.2685865(1.0000)	1.2514279(1.0000)	1.9837317(1.0000)	1.3471909(1.0000)
	GovernmentEffectiveness	1.8289708(1.0000)	2.6010575(1.0000)	1.5711813(1.0000)	1.7142719(1.0000)	1.452155(0.9998)
	PoliticalStability	0.3949224(0.9996)	0.4313831(0.9993)	0.3824507(0.9964)	0.5381032(0.9983)	0.5806603(0.9999)
	RegulatoryQuality	0.3563531(0.9552)	0.4863813(0.9486)	1.0617482(0.9996)	0.3387954(0.8766)	0.112087(0.6510)
	RuleofLaw	−1.4395265(0.0000)	−2.0756414(0.0000)	−1.2014187(0.0008)	−1.3156417(0.0003)	−0.3055709(0.1938)
	VoiceandAccountability	0.0684413(0.7023)	−0.6055131(0.0009)	−1.3760936(0.0000)	−1.8459191(0.0000)	−2.131519(0.0000)
	σ	0.2683541(1.0000)	0.3891051(1.0000)	0.4524076(1.0000)	0.4089084(1.0000)	0.3016814(1.0000)
2008–2013						
Type of variable	Parameter	$\tau = 0.10$	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	$\tau = 0.90$
Financial development variables	*Offices*	0.0035914(0.9981)	0.0085044(0.9999)	0.0104039(1.0000)	0.0112912(1.0000)	0.0111507(0.9999)
	ATMs	0.0014804(1.0000)	0.0017241(1.0000)	0.0027416(0.9999)	0.0031029(0.9996)	0.0057716(1.0000)
	CreditPS	0.1325291(0.9999)	0.0338166(0.7517)	−0.1126613(0.0475)	−0.3716109(0.0000)	−0.3379289(0.0000)
	StockExchange	0.4157225(1.0000)	0.5657354(1.0000)	0.6160595(1.0000)	0.1926438(0.9956)	0.3616381(0.9999)
Quality of government variables	*ControlofCorruption*	0.942108(1.0000)	1.4199928(1.0000)	0.995083(1.0000)	1.1676601(1.0000)	0.5764945(0.9962)
	GovernmentEffectiveness	1.6217503(1.0000)	1.5603623(1.0000)	2.0362931(1.0000)	2.2718926(1.0000)	2.3012464(1.0000)
	PoliticalStability	0.1067238(0.8534)	0.1134843(0.8362)	0.1534108(0.8803)	0.1083537(0.7900)	0.7240392(1.0000)
	RegulatoryQuality	0.1583252(0.8564)	0.5528816(0.9971)	0.1169038(0.6861)	−0.6924698(0.0003)	−0.6810959(0.0003)
	RuleofLaw	−0.832874(0.0000)	−1.0395395(0.0001)	−0.8197025(0.0029)	−0.0878575(0.3749)	−0.5017235(0.0643)
	VoiceandAccountability	−0.0788989(0.2739)	−0.7493536(0.0000)	−1.2565713(0.0000)	−1.6592051(0.0000)	−1.4508391(0.0000)
	σ	0.2832831(1.0000)	0.3988643(1.0000)	0.4656834(1.0000)	0.4141291(1.0000)	0.2958705(1.0000)
2014–2019						
Type of variable	Parameter	$\tau = 0.10$	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$	$\tau = 0.90$
Financial development variables	*Branches*	0.0024059(0.9608)	0.0029254(0.9887)	0.0033429(0.9687)	0.001826(0.7649)	0.002734(0.9147)
	ATMs	0.0018755(1.0000)	0.0016675(1.0000)	0.0015408(0.9960)	0.0024893(1.0000)	0.0025472(1.0000)
	CreditPS	0.3615133(1.0000)	0.208699(0.9998)	0.0055112(0.5279)	0.0625355(0.8191)	0.1961399(0.9917)
	StockExchange	0.4071391(1.0000)	0.3359635(1.0000)	0.4064959(1.0000)	0.3818291(1.0000)	0.457801(1.0000)
Quality of government variables	*ControlofCorruption*	0.9596871(1.0000)	0.9078425(1.0000)	0.4408581(0.9803)	−0.2050566(0.1728)	−0.5807806(0.0028)
	GovernmentEffectiveness	1.3785405(1.0000)	1.8276061(1.0000)	2.8770044(1.0000)	2.071921(1.0000)	1.5979342(1.0000)
	PoliticalStability	0.2218934(0.9904)	0.3385833(0.9999)	0.3602687(0.9949)	0.5849826(1.0000)	0.7618558(1.0000)
	RegulatoryQuality	0.4519451(0.9977)	0.6757009(0.9989)	0.0802922(0.6507)	0.3803456(0.9722)	0.2205284(0.8918)
	RuleofLaw	−1.0819202(0.0000)	−0.9011047(0.0001)	−0.6600559(0.0087)	0.1904142(0.7761)	0.8179706(0.9959)
	VoiceandAccountability	−0.1603652(0.0899)	−0.779027(0.0000)	−1.1635876(0.0000)	−1.4817377(0.0000)	−1.6538401(0.0000)
	σ	0.2660319(1.0000)	0.3770603(1.0000)	0.4381906(1.0000)	0.3830183(1.0000)	0.2701133(1.0000)

Figure 1: Bank branches per 100,000 adult population by continent, 2004



Source: Own elaboration from World Bank data.

Figure 2: Bank branches per 100,000 adult population by continent, 2019



Source: Own elaboration from World Bank data.