

Political Institutions and Financial Development:
An Empirical Study

Final Version, March 2010

YONGFU HUANG

Department of Land Economy, University of Cambridge, UK

Address: 19 Silver Street, Cambridge CB3 9EP

Email : yh279@cam.ac.uk

Tel : 0044-1223 764873

Fax : 0044-1223 337130

Political Institutions and Financial Development: An Empirical Study

Summary

This paper examines whether political institutional improvement promotes financial development, using a panel dataset of 90 developed and developing countries over 1960-99. The empirical evidence reveals a positive effect of institutional improvement on financial development at least in the short-run, particularly for lower-income countries. The preliminary evidence by a before-after event study indicates that a democratic transformation is typically followed by an increase in financial development.

Keywords - political institutions, financial development, globalization, East Asia, Thailand

JEL Classification: G20; O16; O17

Acknowledgement

I am very grateful to Jonathan Temple for his valuable comments and assistance throughout the preparation of this paper. I also thank Stephen Bond, Frank Windmeijer, Editor Oliver Coomes, four referees and seminar participants at the Macro, Growth and Development workshop held at the University of Bristol for helpful comments and discussion. The usual disclaimer applies.

1. INTRODUCTION

Over the last few decades, there has been a substantial increase in financial development in many developing countries. The average ratio of private credit to GDP increased from 23% in 1980 to 32% in 2000, while the average ratio of liquid liabilities to GDP rose from 32% in 1980 to 42% in 2000 in developing world. On the political front, between 1980 and 2000 there were 62 developing countries undertaking significant institutional reforms towards democracies.¹ Do the above economic and political events in the developing world interact in important ways?

Much work has been done to explore the relationship between institutional improvement, especially political liberalisation, and economic growth. The existing research in this field does not unanimously establish the consequences of political reform for economic development. Instead, it is made up of one line of research supporting positive consequences, another line stressing negative consequences and some maintaining ambiguous views. How does democratic process to improve institutional quality influence financial development, especially in countries with low GDP per capita, high ethnic and religious divisions or specific legal origins?

The importance of institutional improvement for financial development has been implicitly indicated by Clague *et al.* (1996) and Olson (1993), who argue that, in comparison to autocracies, democracies better facilitate property rights protection and contract enforcement, encouraging investment directly. In recent research on the political economy of financial development, Pagano & Volpin (2001), Rajan & Zingales (2003) and Beck *et al.* (2003) highlight the role of political intervention and institutions in financial

development. In examining what forces lead government to undertake reforms to enhance financial development, Huang (2009) finds that the extent of democracy is one of the significant forces. However, there has been little research that directly studies the impact of democratic process for institutional improvement on financial development.

This analysis mainly carries out a dynamic panel data study, focusing on 90 developed and developing countries. It examines the impact on financial development of democratic process in a broader sense, in terms of institutional improvement rather than political transformation.² The bias-corrected Least Square Dummy Variable estimator proposed by Kiviet (1995) and recently developed by Bruno (2005) is the central method of this study and compared with the system GMM estimator proposed by Arellano & Bover (1995) and Blundell & Bond (1998).

Before proceeding to the econometric analysis, this research provides some preliminary evidence with a before-and-after event comparison to study probably the most important institutional change, namely political transformation from an autocratic regime to a democratic regime. It focuses on 33 countries that underwent a democratic transformation during 1960-2000 subject to data availability for financial development. This exercise examines the responses of the level of financial development and the volatility of financial development after a regime transition.

This paper shows that improved institutional quality is associated with increases in financial development at least in the short run, especially for lower income countries, ethnically divided and French legal origin countries. The before and after event study also indicates that in general democratic transitions are typically preceded by low financial development, but followed by a short-run boost in financial development and greater volatility of financial development. The findings of this research underline the influence of

institutional reform over the supply side of finance and shed light on the strong and robust relationship between institutional quality and economic performance.

The remainder of the paper proceeds as follows. Section 2 presents a brief review of the literature on institutions, democratisation and finance. Section 3 describes the sample and measures that are used in this study. The empirical results are presented in Section 5 following a description of dynamic panel data methods in Section 4. Section 6 concludes.

2. INSTITUTIONS, DEMOCRATIZATION AND FINANCE

This section briefly outlines the theoretical background and motivation of this research. It discusses the role of institutions in financial development and the possible links between democratic process and finance.

Research on the effect of institutional reform on general economic performance is associated with substantial controversies. Some argue that the democratic process enhances fundamental civil liberties, stable politics and an open society; promotes property rights protection and contract enforcement; discourages corruption and lawlessness, and fosters economic growth (Olson, 1993; Clague *et al.*, 1996; Minier, 1998; Persson, 2005). On the contrary, under pressures from different interest groups, democratic structures may suffer from inefficiency in decision-making and difficulty in implementing viable policies for rapid growth. “Premature” democracy in developing countries possibly lowers the economic growth rate, and even results in economic disorder, political instability and ethnic conflict (Persson & Tabellini, 1992; and Blanchard & Shleifer, 2000). Tavares & Wacziarg (2001) show that “the overall effect of democracy on economic growth is moderately negative”; more specifically, an increase in human capital accumulation is offset by a decrease in physical capital accumulation in the process of democratisation.

Research on the role of institutions in financial development has been substantial, especially research on the effects of the legal and regulatory environment on the functioning of financial markets. A legal and regulatory system involving protection of property rights, contract enforcement and good accounting practices has been identified as essential for financial development. Most prominently, La Porta *et al.* (1997, 1998) have argued that the origins of the legal code substantially influence the treatment of creditors and shareholders, and the efficiency of contract enforcement.³ Among others, Mayer & Sussman (2001) emphasize that regulations concerning information disclosure, accounting standards, permissible practices of banks, and deposit insurance do appear to have material effects on financial development.

Another significant work in this context is Beck *et al.* (2003), which extend the settler mortality hypothesis due to Acemoglu *et al.* (2001) to financial development. They argue that the colonizers, often named as extractive colonizers, associated with an inhospitable environment aim to establish institutions that privilege the small elite group and potentially ignore private property rights, while the colonizers, often named as settler colonizers, in more favourable environments are more likely to create institutions that support private property and balance the power of the state. Accordingly, institutions in the extractive environment tend to block financial development, while those in settler colonies are more conducive to financial development.

The recently developed “new political economy” approach regards “regulation and its enforcement as a result of the balance of power between social and economic constituencies” (Pagano & Volpin, 2001). It centres on self-interested policy makers who can intervene in financial markets either through overall regulation or individual cases for purposes such as career concerns and the promotion of group interests. Rajan & Zingales

(2003) emphasize the role the interest groups, especially the incumbent industrial firms and the domestic financial sector, can play in the process of financial development.⁴

Arguably, countries controlled by elite groups are more inclined to protect the interests of elite from the bulk of society, restrict participation in the political system and so on. The more power held by the elite groups, the more autocratic the system, the more obstacles for financial development. This tends to suggest that institutional reform intending to limit the influence of elite group over policy making, widen suffrage in the political system, respect basic political rights and civil liberties, remove institutional obstacles and enhance institutional efficiency is beneficial to financial development. Girma & Shortland (2008) study the impact of democracy characteristics and regime change on financial development, showing that both democracy and regime change promote financial development.⁵ Apart from Girma & Shortland (2008), research directly exploring the impact of democratic process for institutional improvement on financial development has been lacking.

This research might contribute to our understanding of the structural determinants of financial development. Looking at this issue is also significant for examining whether institutional innovation contributes to an improved investment climate. This is because commonly-used financial development indicators such as the ratio of liquid liabilities to GDP and the ratio of credit issued to the private sector to GDP are generally forward-looking. Better financial development is then an early indication of a better investment environment.

3. MEASURES AND DATA

(a) The sample

This research studies the impact of institutional improvement on financial development, controlling for GDP, trade openness, aggregate investment and black market premium. The measures and data for financial development and institutional improvement are explained in more detail below. Information on the classifications of income levels, region dummies, ethnic fractionalization, and legal origins is obtained from the World Bank Global Development Network Database (GDN) (2002). The data for GDP, trade openness, and aggregate investment are from the Penn World Table 6.2. Data for the black market premium are from the GDN (2002).

This study focuses on a panel of 90 non-transition economies over the period 1960-99 with 5 observations per country. Averaging data over non-overlapping, eight-year periods enables us to abstract from business cycle influences and to examine both short-run and long-run effects. The countries included for this analysis are those undertaking some political reforms to improve institutional quality, but not necessarily experiencing a democratic transition over 1960-99. The sample excludes the East European countries, which became democracies and independent only following the end of the Cold War.⁶ The selection of countries is based on the Polity index, “polity2” of the PolityIV Database explained below. We naturally use data up to the end of 20 century, which is partly because of data availability for some important variables, like black market premium,⁷ and partly because annual data for 40 years are sufficient for a dynamic panel data study.

(b) The measure and data for financial development

The aggregate measure of financial development in this context is denoted by FD. Since there is no single aggregate index in the literature, we use principal components

analysis to produce a new aggregate index. Ideally, the principal component analysis should be based on indicators from the banking sector, stock market and the bond market so as to capture different aspects of financial development. However, data on stock market and bond market development is rarely available before 1975 or even later, so the analysis focuses on financial intermediary development.

The measure is based on three widely-used indicators of financial intermediary development as follows:⁸

1. Liquid Liabilities (LLY), calculated as the liquid liabilities of banks and non-bank financial intermediaries (currency plus demand and interest-bearing liabilities) over GDP. It measures the size, relative to the economy, of financial intermediaries including three types of financial institutions: the central bank, deposit money banks and other financial institutions.

2. Private Credit (PRIVO), defined as the credit issued to the private sector by banks and other financial intermediaries divided by GDP, excluding the credit issued to government, government agencies and public enterprises, as well as the credit issued by the monetary authority and development banks. This captures general financial intermediary activities provided to the private sector.

3. Commercial-Central Bank (BTOT), the ratio of commercial bank assets over the sum of commercial bank and central bank assets. It proxies the advantages of financial intermediaries in channelling savings to investment, monitoring firms, exerting corporate governance and undertaking risk management relative to the central bank.

Since these indicators are used to measure the size of the banking system,⁹ FD mainly captures the size of bank-based intermediation. FD is the first principal component of these three indicators above and accounts for 72% of their variation. The weights

resulting from principal component analysis over the period 1990-99 are 0.59 for Liquid Liabilities, 0.63 for Private Credit and 0.50 for Commercial-Central Bank.

The data on these indicators are obtained from the World Bank's Financial Structure and Economic Development Database (2007).

(c) The measure and data for institutional improvement

The research focuses on political institutions and studies their impact on financial development. The institutional improvement index is the Polity indicator “polity2” in the PolityIV Database (Marshall *et al.*, 2009), denoted by POLIT. It proxies the degree of democracy and seeks to measure institutional quality based on the freedom of suffrage, operational constraints and balances on executives, and respect for other basic political rights and civil liberties. It is called the “combined polity score”,¹⁰ defined as the democracy score minus the autocracy score.¹¹

To pick up any effect of institutional improvement on financial development, this exercise tries to incorporate all democratic reform episodes in the sense that any increase of the annual “polity2” score for a country will be considered even if it always remains an autocratic regime or a democratic regime over the whole period.

To select democratic transition countries for the before-and-after event study, we also take into account the freedom index from Freedom House Country Survey (2008).

4. METHODOLOGY

To assess the relationship between institutional improvement and financial development, the following model is estimated:¹²

$$y_{it} = \alpha y_{i,t-1} + \beta x_{i,t-1} + z'_{i,t-1} \delta + \eta_i + \phi_t + v_{it} \quad (1)$$

$$i = 1, 2, \dots, 90; t = 2, \dots, 5$$

where y_{it} is the dependent variable FD, x_{it} is the explanatory variable POLIT, z_{it} is a vector of controlling variables including the logarithm of the real GDP per capita (LGDP), trade openness (OPENC), aggregate investment (CI) and the black market premium (BMP). OPENC is the logarithm of one plus the trade share, the sum of exports and imports over GDP (at current prices), divided by 100. CI is the ratio of investment to real GDP per capita (using domestic prices), divided by 100. BMP is the logarithm of one plus the black market premium divided by 100. δ is a parameter vector, e.g. $(\delta_1, \dots, \delta_4)'$. η_i is an unobserved time-invariant country-specific effect and can be regarded as capturing the combined effect of all omitted variables. ϕ_t is the time effect. v_{it} is the transitory disturbance term.

We assume that the transient errors v_{it} are serially uncorrelated. In system GMM estimation all x 's and z 's are assumed to be potentially correlated with η_i and predetermined with respect to time-varying errors.¹³ To avoid the potential endogeneity of explanatory variables, lagged values of x_{it} and z_{it} are included in the regression equation, which allows feedbacks from the past shocks onto $x_{i,t-1}$ and $z_{i,t-1}$ while the current and future realisations of y_{it} do not affect them. The assumption is inspired by Rodrik & Wacziarg (2005) who argue that “democratisations tend to follow periods of low growth rather than precede them”. In contrast to the GMM approach, the following bias-corrected LSDV estimation assumes all x 's and z 's to be strictly exogenous, which rules out the possibility of feedbacks from the past, current and future shocks onto $x_{i,t-1}$ and $z_{i,t-1}$.

When the Ordinary Least Square (OLS) technique is used to estimate this model, the OLS estimate of α is inconsistent and likely to be biased upwards since the lagged values of y_{it} are positively correlated with the omitted fixed effects.

A number of methods have been developed to deal with the presence of fixed effects in the dynamic panel data model. By using a within-group operator, the Least Square Dummy Variables (LSDV) method eliminates any omitted variables bias created by the unobserved individual effect and estimates the new model below by OLS:

$$y_{it} - \bar{y}_i = \alpha(y_{i,t-1} - \bar{y}_{i,t-1}) + (x_{i,t-1} - \bar{x}_{i,t-1})\beta + (z_{i,t-1} - \bar{z}_{i,t-1})\delta + (v_{it} - \bar{v}) \quad (2)$$

$i = 1, 2, \dots, 90; t = 2, \dots, 5$

where \bar{y}_i , \bar{x}_i and \bar{z}_i are the group means, that is, $\bar{y}_i = \frac{\sum_{t=2}^5 y_{it}}{5}$, $\bar{x}_i = \frac{\sum_{t=2}^5 x_{it}}{5}$ and $\bar{z}_i = \frac{\sum_{t=2}^5 z_{it}}{5}$. Since the lagged value of y is correlated with the new error term, as shown

by Nickell (1981), the LSDV estimate of α can be badly downwards biased for small T, even as N goes to infinity.

Another way commonly used to wipe out the individual effects is to apply first differencing to Equ (1). By estimating the following first difference equation, the first-difference 2SLS estimator of Anderson & Hsiao (1980, 1981), first differenced GMM estimator of Arellano & Bond (1991) and system GMM estimator of Arellano & Bover (1995) and Blundell & Bond (1998) are proposed among others:

$$\Delta y_{it} = \alpha \Delta y_{i,t-1} + \beta \Delta x_{i,t-1} + \Delta z'_{i,t-1} \delta + \phi_t - \phi_{t-1} + \Delta v_{it} \quad (3)$$

$i = 1, 2, \dots, 90; t = 3, \dots, 5$

Conventional wisdom suggests that the first differenced GMM estimator is consistent and asymptotically more efficient than the first-differenced 2SLS estimator. However, it may suffer from finite sample bias by employing weak instruments, as argued by Blundell & Bond (1998) that “when the autoregressive parameter α is close to unity or the variance of the individual effects (η_i) increases relative to the variance of the transient disturbances (ν_{it}) in the standard AR (1) model, the instruments available for the first-differenced equation are likely to be weak”.

To handle the weak instrument problem, Arellano & Bover (1995) and Blundell & Bond (1998) impose a mean stationarity assumption on initial conditions,¹⁴ and combine the first-difference equations with suitably lagged levels as instruments and levels equations with suitably lagged first-differences as instruments. More specifically, the system GMM estimator, one of the main focuses of this analysis, uses all lagged values of y , x and z as instruments for $\Delta y_{i,t-1}$, $\Delta x_{i,t-1}$ and $\Delta z_{i,t-1}$ in the first difference equation above,¹⁵ and the lagged first-differences of the series (y_{it} , x_{it} , z_{it}) dated $t-1$ as instruments for the untransformed equations in levels.¹⁶ The system GMM estimator has been found to be more efficient than the first differenced GMM estimator in the presence of persistent data and weak instruments for first differences.

The asymptotic properties of the system GMM estimator depend on having a large number of cross-section units, however. One of the main problems in using this estimator is that it may have poor finite sample properties in terms of bias and imprecision. Starting from Kiviet (1995), a bias-correction of LSDV has been developed recently for use in short dynamic panels. Kiviet (1995) derives an approach to approximating the small sample bias of the LSDV estimator and suggests that the bias approximation be evaluated at the estimates from some consistent estimates rather than the unobserved true parameter values,

which makes bias correction operationally feasible. The Monte Carlo evidence from Kiviet (1995), Judson & Owen (1999) and Bun & Kiviet (2003) suggest that the bias-corrected LSDV estimator (LSDVC) is more efficient than LSDV, first--differenced 2SLS, first--differenced GMM and system GMM in terms of bias and root mean square error (RMSE) for small or moderately large samples. Bruno (2005) derives a bias approximation of various orders in dynamic unbalanced panels with a strictly exogenous selection rule.¹⁷

This analysis compares the OLS, LSDV, LSDVC and SYS-GMM, standing for the system GMM estimator, for the whole sample and 3 subsamples. The LSDVC estimator is regarded as the preferred estimator, especially for subsamples, even though the independent variables other than the lagged dependent variable are assumed to be strictly exogenous. The initial estimator for the LSDVC could be either first differenced GMM or the SYS-GMM estimator. However, the SYS-GMM is selected since the Difference Sargan test of additional moments conditions could not reject the null, and the SYS-GMM may be a more reliable estimator than first--differenced GMM in this context.

5. EVIDENCE

The econometric methods are applied to study the effect on financial development of a broader issue, which is institutional improvement, based on even a slight change of the Polity index, “polity2”. Before proceeding to the econometric analysis, we look at some preliminary evidence on the effect of the establishment of representative government on financial development by applying a “before-and-after” approach to 33 countries that underwent transformation from autocratic regimes to complete or partial democracies at some point during 1960-2001.

(a) Preliminary evidence

The sample selection for the “before-and-after” event study relies on both the “polity2” index and “freedom” index from the Freedom House Country Survey (2008). Countries with either their “polity2” index increasing from negative values to positive values or their “freedom” index jumping from “Not Free” to “Partly Free” or “Free” for at least 10 years are considered for this analysis. In general, the “polity2” index and “freedom” index yield similar results on the timing of democratic transition for most cases. However, the “polity2” index excludes small population countries (less than half a million) and the “freedom” index is only available from 1972-73.¹⁸ For completeness, the selection of democratic transition countries combines both of them when both are available and relies on either of them otherwise.

The “before-and-after” approach compares an individual country's financial development performance under autocratic and democratic regimes.¹⁹ To ease interpretation, the FD measure has been rescaled in Table 1.²⁰ The five or ten year's average of FD preceding democratic transition is compared with the mean of the FD during the first five or ten years under democracy for 33 countries.

Table 1 is about here

The 10-year average of standardised FD for the sample countries increases by 0.093 on average after the initiation of a democratic transition and more than half of the sample countries exhibit an improvement in financial development.²¹ It is worth noting that the majority of countries that suffered from a dramatic drop in financial development after democratisation are Latin American countries. On the contrary, most African countries underwent a pick-up in financial development after their democratic transformation. The divergent performance in countries' financial development implies that, apart from

democratisation, the level of financial development in each country may be affected by numerous factors including macroeconomic risks and changes in the general investment climate.²² On average, these results tend to suggest that the establishment of representative government is often associated with an increase in financial development, but the effect is only sizeable for a subset of countries.

Figure 1 is about here

The upper chart of Figure 1 displays the cross-country median FD 10 years before and after transitions for the whole sample. The lower chart of Figure 1 plots the coefficients on the fixed effect estimate of 20 time dummies before and after democratisation to reflect the dynamic effect of a sustained democratisation.²³ The two figures show that the sample countries in general experience a drop in FD prior to democratisation, which is in accordance with the view that worsened economic conditions are associated with subsequent democratisation. After democratisation, FD appears to move slightly upwards on average in 1-5 years, followed by a surge in 5-10 years.

Figure 2 is about here

Figure 2 describes the standard deviation of the FD growth rate before and after a stable democratisation for whole sample and subsamples. Democratisation has led to a substantial rise in the standard deviation of the FD growth rate for the whole sample. Regional groups like Latin America (LAC) and Sub-Saharan Africa (SSA) countries experience a higher standard deviation of the FD growth rate, but Asian countries (ASIA) do not.²⁴ The standard deviations of the FD growth rate in income groups like low-income countries (INCLOW) and middle income countries (INCMID), and in legal origin groups like British legal origin countries (LEG_UK) and French legal origin countries (LEG_FR), increases after their democratic transition. An increase in standard deviation of the FD growth rate may reflect the fact that the removal of institutional obstacles after democratic

transition could bring about short-run investment booms, reflected in a more volatile FD growth rate.

(b) Regression results

The above section does provide some interesting results on the impact of democratic transition on financial development. However, this evidence is preliminary, not convincing. In what follows we present the econometric evidence, for both the whole sample and three subsamples.²⁵

(i) Whole sample results

Table 2 reports the results for the whole sample, including estimation by OLS, LSDV, LSDVC and SYS-GMM. For every estimate, the first column is the baseline specification in which the income level and trade openness are present, while the second column controls for the black market premium and aggregate investment. The point estimate and the approximate standard error of the long run effect for each model are reported. Given the estimated models, the OLS, LSDV, LSDVC and SYS-GMM estimates require that the long-run effect must have same sign as the short-run effect. For the SYS-GMM estimate, the table reports serial correlation tests, a Sargan test and a Difference Sargan test. The serial correlation tests are used to examine the null hypothesis of no first-order serial correlation and no second-order serial correlation respectively in residuals in first-differences. Given the errors in levels being serially uncorrelated, we would expect to find significant first-order serial correlation, but no significant second-order correlation in the first-differenced residuals. The Sargan test of overidentifying restrictions is used to

examine the overall validity of the instruments by comparing the sample moment conditions with their population analogue. The Difference Sargan test, proposed by Blundell and Bond (1998), is used to test the null hypothesis that the lagged differences of the explanatory variables are uncorrelated with the errors in the levels equations.

Table 2 is about here

It is worth noting that, firstly, the autoregressive parameter estimated by LSDVC and SYS-GMM lies in the interval defined by the OLS levels and LSDV estimates. Recall that, in AR(1) models, the OLS levels estimate of the autoregressive parameter is biased upwards in the presence of fixed effects, and the LSDV estimate is biased downwards in a short panel. A consistent estimate of the autoregressive parameter can be expected to lie in between the OLS levels and LSDV estimates. It is a simple indication of the presence of serious finite sample biases when particular estimates fail to fall into this interval or are very close to the bounds.

Both OLS and LSDV estimates indicate a significant positive effect of democratization on financial development although they are biased in opposite directions. The LSDVC estimator suggests evidence at the 20% significance level. The SYS-GMM estimate provides strong evidence that the improvement in institutional quality is associated with financial development, and the diagnostic tests, including the first-order and second-order serial correlation tests, Sargan test and Difference Sargan test, are supportive. In general, the coefficients on the GDP level, trade openness and aggregate investment are positively signed, while the coefficient of the black market premium is negatively signed. The long run effects in the cases of the OLS and LSDV estimates have been found to be positive and stable. However, the long run effects for LSDVC and SYS-GMM are less precisely estimated.

In general, the table provides evidence that democratization is followed by advances in financial development at least in the short run, which is not due to unobserved heterogeneity or endogeneity biases.

(ii) Subsamples

In principle, the system GMM and LSDVC estimates impose homogeneity on all slope coefficients. One concern over the above findings is that these parameters may be heterogeneous across countries. A natural way to confront this problem is to investigate subsamples, which are more homogeneous. We turn to three subsamples in this section: lower income countries, ethnically diverse countries and French legal origin countries.²⁶ Since the cross-section dimensions of these samples are relatively small, LSDVC is expected to be more appropriate than SYS-GMM for these subsamples.

Table 3 is about here

Table 3 presents the results for the lower income countries, made up of low income and lower-middle income countries, covering the majority of the developing countries. We find strong evidence of a positive effect of institutional improvement on financial development in the short run for every estimator. The LSDVC should be the most reliable estimator given the above discussion. Moreover, it also indicates that the effect of improved institutional quality on financial development is sustained into the long run. Trade openness enters the models at the 20% significance level.

Table 4 is about here

Table 4 shows the results for ethnically diverse countries which have a level of ethnic fractionalisation greater than the sample median. We find strong evidence of the positive effect of institutional improvement on financial development in the short run. The

autoregressive parameter estimates from LSDVC and SYS-GMM are very close. The LSDVC estimates suggest a positive effect of political liberalization on financial development at the 20% significance level with GDP and trade openness entering significantly. The SYS-GMM estimates provide much stronger evidence in which GDP and trade openness are present at the 20% significance level. The long run effects and approximate standard errors are in general less precisely estimated except for the case of the OLS and LSDV estimates.

Table 5 is about here

The results for countries with French legal origin are reported in Table 5. This selection is essentially inspired by the work of La Porta *et al.* (1998) which regards the legal origin as a main determinant of financial development. The experiments for British legal origin group, German legal origin group and Scandinavian legal origin group produce no evidence in favour of a causal link from institutional improvement to financial development.

Firstly it is worth noting that the autoregressive parameter estimated by SYS-GMM in the baseline model lies outside of the interval defined by the OLS and LSDV estimates, further implying the LSDVC may be a more reasonable estimator in this context. The LSDVC estimates typically show evidence in support of a positive effect of institutional improvement on financial development for French legal origin countries at the 15% significance level. The finding seems to be in line with La Porta *et al.* (1998) which claims that the main characteristic for countries with French legal origins is that private property rights are generally neglected, while British legal origin countries care more about private property owners. The finding supports a tentative hypothesis that democratisation in French legal origin countries tends to change the status of private property owners in the national economy, and is thus conducive to financial development.

In sum, the above studies on subsamples have produced a coherent set of findings: improved institutional quality lends to greater financial development, at least in the short run. In the group of lower income countries, a significant long run effect is also observed. In general, we find the black market premium has a negative effect, while GDP, trade openness and aggregate investment enter positively.

6. CONCLUSION

This research examines whether institutional improvement stimulates financial development using a panel of 90 economies over the period 1960-99. By comparing newly developed panel data techniques, including bias-corrected LSDV and system GMM estimators, this paper shows that improved institutional quality is associated with increases in financial development at least in the short run, and this is particularly true for lower income countries, ethnically divided and French legal origin countries. For the lower income countries, this effect is expected to persist over longer horizons. The preliminary evidence by a “before-and-after” approach indicates that in general democratic transitions are typically preceded by low financial development, but followed by a short-run boost in financial development and greater volatility of financial development.

The findings of this research highlight the influence of institutional innovation on the supply side of financial development. They shed light on the strong and robust relationship between institutional quality and economic performance, and present further grounds for institutional reform.

The findings in the panel data study on the coexistence of the effect of institutional innovation, GDP and trade openness on financial development are very significant. Firstly, it enriches the evidence for an openness-finance nexus. Huang & Temple (2005)'s cross-

section and panel data study suggests that trade openness is very likely to boost financial development, for which institutional improvement could serve as one channel. The IMF (2003) indicates the possible existence of such a channel by concluding that “greater openness to trade and stronger competition are conducive to institutional improvement, and thus to growth”. However, the findings of this research tend to suggest that there are additional channels via which more open policies exert a positive effect on financial development. The findings are also consistent with Rajan & Zingales (2003)'s claim that trade openness is helpful for changing incumbents' willingness to promote financial development.

Secondly, it has implications for economic reform and political reform. Giavazzi & Tabellini (2004) argue that “studying the effects of each reform (economic and political reform) individually can be misleading” and there are positive feedback effects and interaction effects between economic liberalisation and political liberalisation. The findings of this paper seem to be consistent with their findings on the interaction effects in the sense that institutional reform under an open economic environment exerts an additional boost to investment and economic growth, and thus to financial development.

ENDNOTES

¹ Countries are considered as experiencing a political transition when either their “polity2” scores in the PolityIV Database by Marshall *et al.* (2009) change from negative values to positive values or their “freedom” indices, defined in this paper from the Freedom House Country Survey (2008), change from “Not Free” to “Free” or “Partly Free”.

² One of the channels through which democratization affects financial development is the property right protection or contract enforcement. Olson (1993) and Clague *et al.*

(1996) argue that democracies tend to result in better protection of property rights and more efficient contract enforcement, which are conducive to financial development (La Porta *et al.*, 1997, 1998).

³ La Porta *et al.* (1997, 1998) document that countries with a legal code like Common Law tend to protect private property owners, while countries with a legal code like Civil Law tend to care more about the rights of state and less about the rights of the masses. Countries with French legal origins are said to have comparatively inefficient contract enforcement and more corruption, and less well-developed financial systems, while countries with British legal origins enjoy higher levels of financial development.

⁴ They argue that incumbents have strong incentives to block the development of a more transparent and competitive financial sector, although these incentives may be weakened by openness to external trade and international flows of capital.

⁵ Based on annual data for developed and developing countries over 1975-2000, Girma & Shortland (2008) use approaches such as the system GMM approach due to Arellano & Bover (1995) and Blundell & Bond (1998). In contrast to their approaches, this research makes use of the system GMM and LSDVC approaches, based on averaged data over 1960-99. This is a proper treatment of dynamic panel model with small T and is expected to produce more convincing results.

⁶ The main reason for this is that, data prior to 1990 for these countries generated by the central planning economy are largely incomplete, while data after 1990 are highly problematic or doubtful since most of these countries underwent severe economic disorder for several years in the early stage of the transformation process to a market-oriented economy. Nevertheless, an additional examination with the inclusion of transition economies has been carried out for the period 1993-1999. After excluding

the countries with Polity indicator constant over the period, it ends up with 55 countries in total. By applying the econometric methods on annual data, it shows that at least LSDVC estimate clearly suggests a significantly positive effect of institutional improvement on financial development. Results are available from the author upon request.

⁷ Data for black market premium from the GDN are available up to 1998.

⁸ The description here is mainly from Demirgüç-Kunt & Levine (1996, 1999).

⁹ Two measures for the efficiency of financial intermediation that are sometimes used are Overhead Costs, the ratio of overhead costs to total bank assets, and Net Interest Margin, the difference between bank interest income and interest expenses, divided by total assets. Due to the incompleteness of the relevant data, they are not included in this analysis.

¹⁰ In this polity coding system, zero is the threshold by which the country with a positive “polity2” score is regarded as a democracy while the country with a negative “polity2” score is regarded as an autocracy.

¹¹ The democracy and autocracy scores are derived from six authority characteristics (regulation, competitiveness and openness of executive recruitment; operational independence of chief executive or executive constraints; and regulation and competition of participation). Based on these criteria, each country is assigned a democracy score and an autocracy score ranging from 0 to 10. The larger is the democracy score, the fairer is the election of executive power, the more open is the political process and the higher the extent of the constraints on executive power. On the contrary, a larger autocracy score reflects a less open political process in a country in terms of less competitiveness and fairness in election, narrower participation and fewer constraints on executive power.

¹² By experimenting with 5-year averages and 8-year averages, respectively, I start from a general model with three lags of the dependent and independent variables and test the null hypothesis of the coefficients being zero for the longest lag. I end up with one lagged dependent variable, one lagged independent variable, one lag of log GDP and one lag of trade openness measure appearing in the model with 8-year averages for this context, given that the relevant specification tests are satisfied.

¹³ The series $x_{i,t-1}$ is defined as being predetermined with respect to v_{it} when $x_{i,t-1}$ is correlated with $v_{i,t-1}$ and earlier shocks, but is uncorrelated with v_{it} and subsequent shocks. The series x_{it} is strictly exogenous when x_{it} is uncorrelated with earlier, current and future errors. See Bond (2002) and Arellano (2003) for details.

¹⁴ For the multivariate autoregressive model, Blundell & Bond (2000) show that a sufficient condition for the additional moment conditions to be valid is the joint mean stationarity of all the series.

¹⁵ In this analysis the instrument set used is restricted (to avoid the possible overfitting bias) in the sense that all lagged values of y , x and z at dates $t-2$ and $t-3$ are used as instruments for $\Delta y_{i,t-1}$, $\Delta x_{i,t-1}$ and $\Delta z_{i,t-1}$ in the first difference equation.

¹⁶ Note that when the instrument set is not restricted, the lagged first-differences of the series (y_{it}, x_{it}, z_{it}) dated $t-1$ are used as instruments for the untransformed equations in levels. Differences lagged two periods or more are redundant as instruments for the levels equations because the corresponding moment conditions are linear combinations of those already in use. In this analysis, the lagged first-differences of the series (y_{it}, x_{it}, z_{it}) dated $t-1$ and $t-2$ are used due to the use of restricted instrument set.

¹⁷ Essentially, in the bias approximation of Bruno (2005), the within operator is adjusted to include an exogenous selection rule which only selects the observations with observable current and one-time lagged values, by which missing observations for some individuals are allowed.

¹⁸ Since the freedom index has data starting from the period 1972-1973, it is not used for the panel data study, but used for selecting the democratic transition countries.

¹⁹ The event identification methodology of Papaioannou & Siourounis (2008) has been found useful for selecting the democratic transition countries, but the selection method in this analysis differs from their method in the following ways. Firstly, for simplicity this analysis selects the sample exclusively depending on the changes from autocratic rule to democratic regimes without any further divisions, while Papaioannou & Siourounis (2008) divide democratizations into “full”, “partial” and “borderline” with different thresholds in terms of either the “polity2” or the “freedom” index. Secondly, this analysis is interested in the effect of a stable regime change on financial development. Hence, the sample only includes the countries whose regime changes last for at least 10 years.

²⁰ The FD measure has been standardized. More specifically, it is divided by the cross-country standard deviation of FD in 1999.

²¹ When we compare the 5-year averages before and after democratization, we find that the 5-year average of standardized FD post-democratization for 33 countries is larger by 0.015 cross-country standard deviations of FD than before their democratization, and about two-thirds of the sample countries benefit from this process. Columns 7 to 9 show that the average of standardized FD 5 to 10 year’s post-democratization for 33 countries is larger by 0.212 cross-country standard deviations of FD than 10 to 5 years before their democratization, and much more sample

countries benefit from this process. The median values of the increase in standardized FD for three cases of comparison are positive.

²² Looking at the financial development performance of each individual country, we find enormous heterogeneity across countries, ranging from an increase of 1.096 of a cross-country standard deviation of FD in the 10-year average of standardized FD for Thailand to a decline of 0.415 of a cross-country standard deviation of FD for Zambia. Korea and Madagascar also witnessed a drastic increase in the 10-year average of standardised FD, whilst Nicaragua and Uruguay experienced a tremendous drop in FD following their democratization. Case studies on how democratization helped the financial development process are interesting areas for future research.

²³ The regression is estimated by OLS in which the unobserved country specific effects, time effects and control variables such as trade openness, GDP, aggregate investment and black market premium are included.

²⁴ Largely, among Asian countries, the financial development performance and other economic performance in East Asian and Pacific countries are different from those in South Asian countries.

²⁵ This research also examines the impacts on specific financial development measure such as private credit, liquidity liabilities and commercial-central bank and finds that the results are in general robust to using individual measure, especially commercial-central bank (for both whole sample and three subsamples). Results are available from the author upon request.

²⁶ The selection of these subsamples is mainly stimulated by Rodrik & Wacziarg (2005) in which low income countries, ethnically diverse countries and Sub-Saharan African countries are studied. However, I find no evidence in support of a positive/negative link between institutional improvement and financial development

for the Sub-Saharan African countries. Experiments were also conducted for the Asian countries and Latin American countries, again finding no evidence.

REFERENCES

- Acemoglu, D., Johnson, S. & Robinson, J. (2001). Colonial origins of comparative development: An empirical investigation. *American Economic Review*, 91(5), 1369-1401.
- Ahn, S. C. & Schmidt, P. (1995). Efficient estimation of models for dynamic panel data. *Journal of Econometrics*, 68, 5-28.
- Anderson, T. W. & Hsiao, C. (1981). Estimation of dynamic models with error components. *Journal of the American Statistical Association*, 76, 598-606.
- Anderson, T. W. & Hsiao, C. (1982). Formulation and estimation of dynamic models using panel data. *Journal of Econometrics*, 18, 47-82.
- Arellano, M. & Bond, S. (1991). Some tests of specification for panel data: Monte carlo evidence and an application to employment equations. *Review of Economic Studies*, 58, 277-97.
- Arellano, M. & Bover, O. (1995). Another look at the instrumental-variable estimation of error-components models. *Journal of Econometrics*, 68, 29-51.
- Arellano, M. (2003). *Panel Data Econometrics*, Oxford University Press: Advanced Texts in Econometrics.

-
- Beck, T., Demirguc-Kunt, A. & Levine, R. (2003). Law, endowment and finance. *Journal of Financial Economics*, 70, 37-81.
- Bond, S. (2002). Dynamic panel data models: A guide to micro data methods and practice. *Portuguese Economic Journal*, 1, 141-62.
- Blanchard, O. & Shleifer, A. (2000). Federalism with and without political centralization: China versus Russia. *NBER working paper* no. 7616.
- Blundell, R. & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87, 115-43.
- Blundell, R. & Bond, S. (2000). GMM estimation with persistent panel data: An application to production functions. *Econometric Reviews*, 19, 321-340.
- Bruno, G. S. F. (2005). Approximating the bias of the LSDV estimator for dynamic unbalanced panel data models. *Economics Letters*, 87(3), 361-66.
- Bun, M. J. G., & Kiviet, J. F. (2003). On the diminishing returns of higher order terms in asymptotic expansions of bias. *Economics Letters*, 79, 145-152.
- Clague, C., Keefer, P., Knack, S. & Olson, M. (1996). Property and contract rights in autocracies and democracies. *Journal of Economic Growth*, 1, 243-76.
- Demirgüç-Kunt, A. & Levine, R. (1996). Stock markets, corporate finance and economic growth: An overview. *World Bank Economic Review*, 10(2), 223-40.
- Demirgüç-Kunt, A. & Levine, R. (1999). Bank-based and market-based financial systems: Cross-country comparisons. *World Bank Policy Research working paper* no. 2143.
- Freedom House. (2008). Freedom House Country Survey, www.freedomhouse.org.
- Girma, S. & Shortland, A. (2008). The political economy of financial development. *Oxford Economic Papers*, 60(4), 567-596.

-
- Giavazzi, F. & Tabellini, G. (2004). Economic and political liberalisation. *NBER working paper no.10657*.
- Huang, Y. & Temple, J. (2005). Does external trade promote financial development? *CEPR working paper no. 5150*.
- Huang, Y. (2009). The political economy of financial reform: Are Abiad and Mody right? *Journal of Applied Econometrics*, 24(7), 1207-1213.
- IMF, (2003). World Economic Outlook.
- Judson, R. A. & Owen, A. L. (1999). Estimating dynamic panel data models: A guide for macroeconomists. *Economics Letters*, 65, 9-15.
- Kiviet, J. F. (1995). On bias, inconsistency and efficiency of various estimators in dynamic panel data models. *Journal of Econometrics*, 68, 53-78.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R.W. (1997). Legal determinants of external finance. *Journal of Finance*, 52(3), 1131-50.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R.W. (1998). Law and finance. *Journal of Political Economy*, 106, 1113-55.
- Marshall, M. G. & Jaggers, K. (2009). Polity IV Project Country Reports, CIDUM, University of Maryland.
- Mayer, C. & Sussman, O. (2001). The assessment: Finance, law and growth. *Oxford Review of Economic Policy*, 17(4), 457-66.
- Minier, J. A. (1998). Democracy and growth: Alternative approaches. *Journal of Economic Growth*, 3(3), 241-66.
- Nickell, S. (1981). Biases in dynamic models with fixed effects. *Econometrica*, 49, 1417-26.
- Olson, M. (1993). Dictatorship, democracy and development. *American Political Science Review*, 87, 567-76.

-
- Pagano, M. & Volpin, P. (2001). The political economy of finance. *Oxford Review of Economic Policy*, 17(4), 502-19.
- Persson, T. & Tabellini, G. (1992). Growth, income distribution and democracy. *European Economic Review*, 36, 593-602.
- Persson, T. (2005). Forms of democracy, policy and economic development. *NBER working paper* no.11171.
- Papaioannou, E. & Siourounis, G. (2008). Democratization and growth. *Economic Journal*, 118(532), 1520-1551.
- Rajan, R. G. & Zingales, L. (2003). The great reversals: The politics of financial development in the twentieth century. *Journal of Financial Economics*, 69, 5-50.
- Rodrik, D. & Wacziarg, R. (2005). Do democratic transitions produce bad economic outcomes? *American Economic Review*, 95(2), 50-55.
- Tavares, J. & Wacziarg, R. (2001). How democracy affects growth? *European Economic Review*, 45(8), 1341-78.
- Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, 126(1), 25-51.
- World Bank, Financial Structure and Economic Development Database (2007).

Table 1. Change in FD standardized before and after democratization

Countries	Demotion year	1	2	3	4	5	6	7	8	9
Period covered		[-10, 0)	(0, 10]	DIFF1	[-5, 0)	(0, 5]	DIFF2	[-10, -5)	(5, 10]	DIFF3
Argentina	1983	-0.375	-0.466	-0.092	-0.266	-0.723	-0.457	-0.483	-0.570	-0.087
Bolivia	1982	-1.055	-0.789	0.266	-1.000	-1.397	-0.396	-1.110	-0.844	0.266
Brazil	1985	-0.492	-0.341	0.151	-0.492	-0.610	-0.118		-0.408	
Chile	1989	-0.136	0.305	0.441	-0.138	0.040	0.178	-0.134	0.405	0.539
Dominican Rep.	1978	-0.527	-0.351	0.176	-0.337	-0.311	0.027	-0.717	-0.356	0.361
Ecuador	1979	-0.674	-0.486	0.188	-0.629	-0.451	0.178	-0.719	-0.697	0.022
Ethiopia	1994	-0.562	-0.615	-0.053	-0.547	-0.458	0.090	-0.577		
Ghana	1996	-1.295	-1.042	0.252	-1.256	-0.969	0.288	-1.333		
Grenada	1984	0.247	0.635	0.388	0.232	0.256	0.024	0.286	0.603	0.317
Guatemala	1986	-0.569	-0.411	0.157	-0.645	-0.532	0.114	-0.492	-0.185	0.307
Honduras	1980	-0.199	-0.278	-0.079	-0.142	-0.252	-0.110	-0.255	-0.192	0.064
Hungary	1989	-0.631	-0.335	0.296	-0.584	-0.323	0.261	-0.868	-0.446	0.421
Korea, Rep.	1987	0.307	1.031	0.724	0.482	0.874	0.393	0.133	1.428	1.295
Lesotho	1993	-0.300	-0.266	0.034	-0.572	-0.364	0.208	-0.028	-0.213	-0.185
Madagascar	1991	-0.942	-0.460	0.483	-0.983	-0.808	0.176	-0.902	-0.741	0.160
Mexico	1994	-0.592	-0.367	0.224	-0.404	-0.138	0.267	-0.779	-0.245	0.534
Mali	1992	-0.625	-0.532	0.093	-0.625	-0.559	0.066		-0.499	
Malawi	1994	-0.814	-0.737	0.078	-0.840	-0.783	0.056	-0.789	-0.750	0.039
Nicaragua	1990	-0.342	-0.548	-0.206	-0.667	-0.757	-0.090	-0.017	-0.506	-0.489
Nepal	1990	-0.735	-0.657	0.077	-0.745	-0.506	0.239	-0.725	-0.163	0.562
Pakistan	1988	-0.224	-0.266	-0.042	-0.186	-0.231	-0.045	-0.262	-0.127	0.135
Panama	1989	0.142	0.035	-0.106	0.093	0.039	-0.054	0.190	0.817	0.627
Peru	1979	-0.300	-0.351	-0.051	-0.230	-0.433	-0.203	-0.370	-0.554	-0.184
Philippines	1986	-0.003	-0.113	-0.110	0.034	-0.363	-0.396	-0.040	0.076	0.116
Poland	1989	-0.398	-0.167	0.230	-0.610	-0.319	0.291	0.132	-0.125	-0.257
Paraguay	1989	-0.467	-0.588	-0.121	-0.588	-0.471	0.117	-0.346	-0.211	0.136
El Salvador	1982	-0.685	-0.740	-0.055	-0.724	-0.876	-0.151	-0.645	-0.925	-0.280
Suriname	1987	0.036	-0.110	-0.146	0.221	0.405	0.184	-0.149	-0.508	-0.359
Seychelles	1993	-0.299	0.029	0.328	-0.275	-0.128	0.148	-0.323	0.440	0.763
Thailand	1978	-0.193	0.903	1.096	-0.132	0.048	0.181	-0.254	0.452	0.706
Uruguay	1985	-0.145	-0.523	-0.378	0.246	-0.419	-0.666	-0.536	-0.398	0.139
South Africa	1994	0.453	0.514	0.061	0.434	0.562	0.128	0.465	0.731	0.266
Zambia	1991	-0.926	-1.341	-0.415	-0.926	-1.349	-0.423		-1.316	
Average				0.118			0.015			0.212
1st Quartile				-0.079			-0.110			-0.005
Median Value				0.078			0.090			0.149
3rd Quartile				0.252			0.181			0.450

Note: This table compares the financial development performance for 33 countries before and after democratization. See text for the country selection. Column 1 or 2 is the average of FD standardized 10 years before or after transition. DIFF1 is the difference between them. Column 4 or 5 is the average of FD standardized 5 years before or after transition. DIFF2 is the difference between two columns. Column 6 and 7 are the average of FD standardized 10 to 5 years before transition and 5 to 10 years after transition, respectively. DIFF3 is the difference between column 6 and 7. In the lower section the average, 1st Quartile, median value and 3rd Quartile are calculated for DIFF1, DIFF2 and DIFF3. The FD measure has been divided by cross-country standard deviation of FD in 1999.

Table 2. Institutional improvement and financial development (whole sample)

	OLS		LSDV		LSDVC		SYS-GMM	
$FD_{i,t-1}$	0.951 [0.00]***	0.863 [0.00]***	0.379 [0.00]***	0.320 [0.00]***	0.825 [0.00]***	0.796 [0.00]***	0.689 [0.01]***	0.848 [0.00]***
$POLIT_{i,t-1}$	0.015 [0.04]**	0.015 [0.04]**	0.025 [0.04]**	0.026 [0.05]**	0.018 [0.19]	0.020 [0.15]	0.080 [0.03]**	0.028 [0.05]**
$LGDP_{i,t-1}$	0.133 [0.02]**	0.013 [0.85]	1.232 [0.00]***	1.179 [0.00]***	0.655 [0.02]**	0.567 [0.04]**	0.466 [0.20]	0.048 [0.74]
$OPENC_{i,t-1}$	0.159 [0.53]	0.273 [0.31]	1.818 [0.01]***	1.912 [0.02]**	1.214 [0.05]**	1.470 [0.06]*	2.195 [0.17]	0.500 [0.31]
$BMP_{i,t-1}$		-0.240 [0.00]***		-0.089 [0.45]		-0.050 [0.73]		-0.236 [0.02]**
$CI_{i,t-1}$		2.372 [0.00]***		0.798 [0.49]		0.755 [0.48]		2.785 [0.10]*
M1(p-value) ¹							0.03	0.04
M2(p-value) ¹							0.20	0.98
Sargan(p-value) ²							0.28	0.34
Diff-Sargan (p-value) ²							0.18	0.89
LR effect ³	0.306	0.110	0.041	0.038	0.102	0.099	0.256	0.187
(Standard error)	[0.39]	[0.06]*	[0.02]*	[0.02]*	[0.08]	[0.07]	[0.23]	[0.17]
Observations	233	220	233	220	233	220	233	220

Notes: 82 countries, 1960-99. Dependent variable is financial development (FD). P-value reported in brackets below point estimates.

Year dummies included in all models. *, **, *** significant at 10%, 5%, 1%, respectively. LSDVC estimator is the corrected LSDV estimator developed by Kiviet (1995) for finite sample bias and constructed for dynamic unbalanced panels by Bruno (2005). The SYS-GMM results are two-step estimates with heteroskedasticity-consistent standard errors and test statistics; the standard errors are based on the finite sample adjustment of Windmeijer (2005).

¹ M1 and M2 are tests for null of no first-order and no second-order serial correlation in the first-differenced residuals, asymptotically $N(0,1)$.

² Sargan tests the overidentifying restrictions for GMM estimators, while Diff-Sargan tests the null of mean stationarity for system GMM.

³ LR measures the long-run effect of institutional improvement on financial development. Its standard error is approximated using delta method.

Table 3. Institutional improvement and financial development (lower income countries)

	OLS		LSDV		LSDVC		SYS-GMM	
$FD_{i,t-1}$	0.932 [0.00]***	0.854 [0.00]***	0.387 [0.00]***	0.292 [0.04]**	0.840 [0.00]***	0.775 [0.00]***	0.991 [0.00]***	0.790 [0.00]***
$POLIT_{i,t-1}$	0.012 [0.11]	0.009 [0.25]	0.044 [0.00]***	0.048 [0.00]***	0.030 [0.04]**	0.032 [0.07]*	0.049 [0.07]*	0.027 [0.04]**
$LGDP_{i,t-1}$	0.128 [0.05]*	0.049 [0.49]	0.662 [0.03]**	0.659 [0.04]**	0.249 [0.35]	0.245 [0.29]	0.238 [0.52]	0.255 [0.13]
$OPENC_{i,t-1}$	-0.297 [0.33]	-0.348 [0.26]	1.676 [0.03]**	1.412 [0.10]*	1.177 [0.14]	1.123 [0.18]	0.603 [0.51]	0.363 [0.63]
$BMP_{i,t-1}$		-0.244 [0.01]***		-0.123 [0.26]		-0.086 [0.47]		-0.223 [0.04]**
$CI_{i,t-1}$		2.202 [0.01]***		0.847 [0.50]		0.554 [0.64]		2.213 [0.12]
M1(p-value) ¹							0.00	0.00
M2(p-value) ¹							0.26	0.22
Sargan(p-value) ²							0.41	0.68
Diff-Sargan (p-value) ²							0.84	0.97
LR effect ³	0.180	0.064	0.072	0.068	0.186	0.142	5.454	0.13
(Standard error)	[0.18]	[0.05]	[0.02]***	[0.02]***	[0.11]*	[0.08]*	[141.51]	[0.09]
Observations	177	169	177	169	177	169	177	169

Notes: 57 countries. For other notes, please see Table 2.

Table 4. Institutional improvement and financial development (ethnically diverse countries)

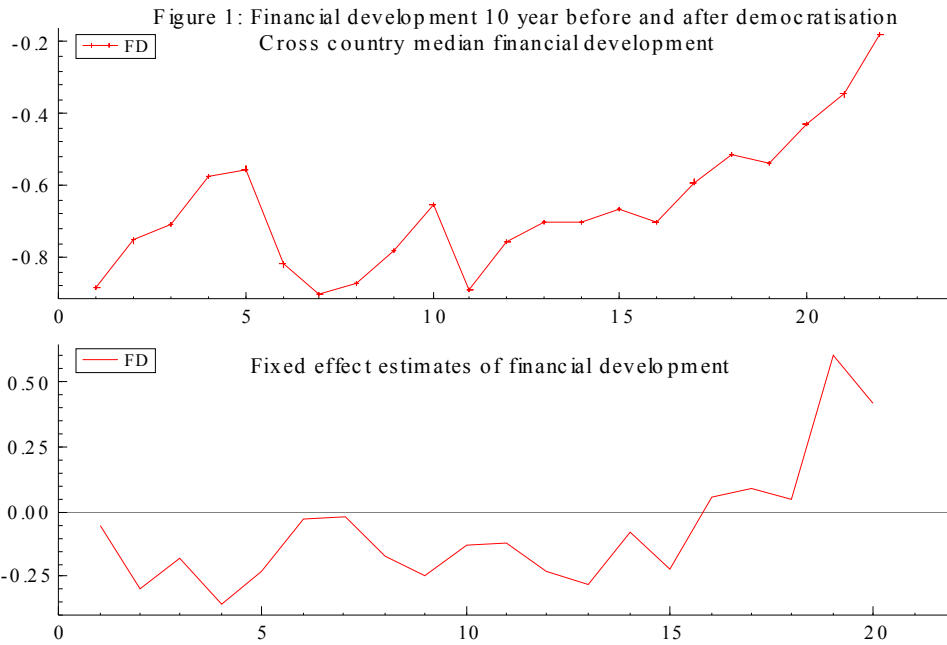
	OLS		LSDV		LSDVC		SYS-GMM	
$FD_{i,t-1}$	0.913	0.840	0.365	0.313	0.820	0.794	0.857	0.807
	[0.00]***	[0.00]***	[0.00]***	[0.01]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
$POLIT_{i,t-1}$	0.017	0.018	0.026	0.025	0.020	0.021	0.055	0.034
	[0.02]**	[0.01]***	[0.04]**	[0.07]*	[0.16]	[0.17]	[0.11]	[0.06]*
$LGDP_{i,t-1}$	0.144	0.045	1.193	1.148	0.585	0.501	0.378	0.206
	[0.01]***	[0.51]	[0.00]***	[0.00]***	[0.03]**	[0.08]*	[0.18]	[0.11]
$OPENC_{i,t-1}$	0.333	0.388	1.879	1.959	1.318	1.529	1.447	0.816
	[0.17]	[0.12]	[0.01]***	[0.02]**	[0.06]*	[0.07]*	[0.21]	[0.14]
$BMP_{i,t-1}$		-0.237		-0.091		-0.055		0.218
		[0.00]***		[0.44]		[0.67]		[0.01]***
$CI_{i,t-1}$		1.894		0.458		0.530		1.304
		[0.02]**		[0.70]		[0.69]		[0.24]
MI(p-value) ¹							0.02	0.03
M2(p-value) ¹							0.19	0.54
Sargan(p-value) ²							0.12	0.24
Diff-Sargan (p-value) ²							0.73	0.61
LR effect ³	0.200	0.115	0.041	0.036	0.109	0.103	0.384	0.175
(Standard error)	[0.15]	[0.06]**	[0.02]**	[0.02]*	[0.08]	[0.08]	[0.69]	[0.159]
Observations	220	211	220	211	220	211	220	211

Notes: 67 countries. For other notes, please see Table 2.

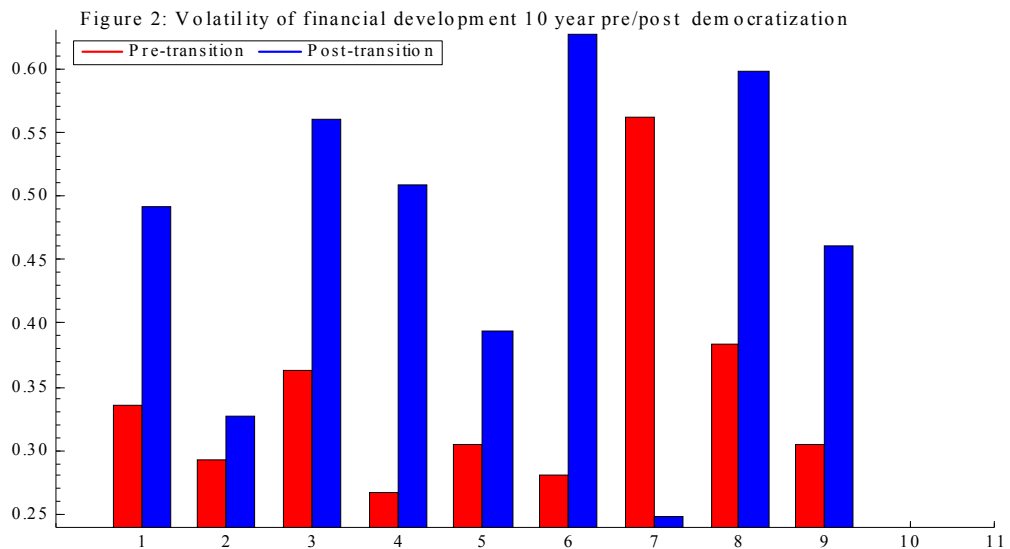
Table 5. Institutional improvement and financial development (French legal origin countries)

	OLS		LSDV		LSDVC		SYS-GMM	
$FD_{i,t-1}$	0.763	0.721	0.214	0.214	0.708	0.694	0.848	0.709
	[0.00]***	[0.00]***	[0.10]*	[0.12]	[0.00]***	[0.00]***	[0.00]***	[0.00]***
$POLIT_{i,t-1}$	0.018	0.020	0.027	0.030	0.027	0.032	0.038	0.042
	[0.12]	[0.07]*	[0.11]	[0.08]*	[0.12]	[0.14]	[0.11]	[0.04]**
$LGDP_{i,t-1}$	0.144	0.042	0.643	0.572	0.294	0.155	0.319	0.129
	[0.04]**	[0.63]	[0.06]*	[0.12]	[0.47]	[0.65]	[0.10]*	[0.51]
$OPENC_{i,t-1}$	0.468	0.755	2.691	2.110	2.421	1.997	0.522	1.250
	[0.23]	[0.04]**	[0.01]***	[0.06]*	[0.03]**	[0.07]*	[0.48]	[0.12]
$BMP_{i,t-1}$		-0.185		-0.135		-0.088		-0.135
		[0.01]***		[0.35]		[0.61]		[0.06]*
$CI_{i,t-1}$		1.836		1.110		1.558		1.445
		[0.04]**		[0.49]		[0.38]		[0.38]
MI(p-value) ¹							0.08	0.06
M2(p-value) ¹							0.12	0.19
Sargan(p-value) ²							0.31	0.91
Diff-Sargan (p-value) ²							0.51	0.95
LR effect ³	0.075	0.070	0.034	0.038	0.094	0.104	0.251	0.144
(Standard error)	[0.05]	[0.04]*	[0.02]	[0.02]*	[0.06]	[0.08]	[0.27]	[0.12]
Observations	153	150	153	150	153	150	153	150

Notes: 49 countries. For other notes, please see Table 2.



Note: 33 democratisation countries, 1960 99. Upper figure shows the cross country median financial development for these countries. Lower figure plots the coefficients of fixed effect estimate of 20 time dummies before and after democratisation. The regression is estimated by OLS in which the country effects, time effects, controlling variables like LGDP, OPENC, BMP and CI are included.



Note: 33 democratisation countries, 1960 99. This figure shows the volatility of financial development, standard deviation of FD growth rate, for the whole sample and 8 subsamples before and after democratisation.