Financial Development and Economic Growth in Latin America:
Schumpeter is Right!

Manoel Bittencourt
University of Pretoria

27 - 29 October 2010
Indaba Hotel and Conference Centre
Johannesburg
South Africa

Hosted by

DPRU
Development Policy Research Unit

TIPS

Financial Development and Economic Growth in Latin America: Schumpeter is Right!

Manoel Bittencourt
University of Pretoria
Working Paper: 2010-14
June 2010

Financial Development and Economic Growth in Latin America: Schumpeter is Right!

Manoel Bittencourt[†]

June 13, 2010

Abstract

In this paper we investigate the role of financial development, or more wide-spread access to finance, in generating economic growth in four Latin American countries between 1980 and 2007. The results, based on the relatively novel panel time-series analysis, confirm the Schumpeterian prediction which suggests that finance authorises the entrepreneur to invest in productive activities, and therefore to promote economic growth. Furthermore, given the characteristics of the sample of countries chosen, we also highlight the importance of macro-economic stability, and all the institutional framework that it encompasses, as a necessary condition for financial development, and consequently for growth and prosperity in the region.

Keywords: Finance, growth, Latin America.

JEL Classification: E31, N16, O11, O54.

Introduction and Motivation

Latin America has been know for a particular tendency of displaying erratic growth rates, combined with political instability and poor macroeconomic performance (in the role of high inflation rates), in particular in the 1980s and first half of the 1990s. Some of the countries presenting these characteristics in the region include; Argentina, Bolivia, Brazil and Peru. Re-democratisation came in the 1980s and macroeconomic stabilisation in the 1990s, and coincidentally enough, growth rates *and* financial development became consistently positive some time after political and economic stabilisation took root in the region.

Given this background, we investigate the role of financial development, or wider access to resources which can be channelled to productive activities, in generating growth and prosperity in four Latin American countries which displayed not only political instability, but also hyperinflationary episodes in the 1980s and early 1990s. More specifically, we use data from Argentina, Bolivia, Brazil and Peru from 1980 to 2007, and the relatively novel panel time-series analysis to study the role, if any at all, of financial development in promoting economic growth in the region.

The results suggest, once we account for all sorts of endogeneity problems, that financial development indeed played an important role in generating growth in the region, even under severe macroeconomic conditions. However, the results also indicate that the effect of finance on growth would be even greater if those countries had not experienced the hyperinflationary episodes of the 1980s and 1990s. Therefore, we not only confirm the early empirical evidence based on international cross-sectional and panel analysis, but also highlight the role of macroeconomic instability in actually reducing the size of the positive effect of finance on growth, and consequently the welfare

1

costs of poor macroeconomic performance on an important growth determinant[1].

The subject of financial development and economic growth was first raised by Schumpeter (1912), in which he highlights how important finance is for the growth and development of a capitalist economy. The Schumpeterian analysis is based on the idea that credit, when in the hands of the 'entrepreneur', is conducive to growth and prosperity. Loosely speaking, with credit, the entrepreneur can alter the normal flow of an economy through innovations that, in turn, generate growth[2].

Following that expert lead, King and Levine (1993), Levine and Zervos (1998), Beck, Levine and Loyaza (2000), and Beck and Levine (2004), using different samples of countries covering the period between 1960 and 1998, and methodologies based on cross-sectional and panel analysis, report that a range of measures of financial development have a positive effect on long-run growth. In addition, Rousseau and Wachtel (2000), using annual international data from 1980 and 1995, and panel-var analysis, are also able to report that finance plays an important role in generating economic growth[3].

Given the above, the contribution of this paper to the literature is that, firstly, we follow the advice given by Fischer (1993) and conduct a case study on the subject (i.e., we focus on understanding how those Latin American economies, which shared some common features in the 1980s and 1990s, but that also present particular idiosyncrasies of their own, behaved during an important period of their recent history, so that a more disaggregated and informative analysis is conducted). Secondly, we

---

[1]For instance, Beck, Demirgüç-Kunt and Levine (2007), and Bittencourt (2010) suggest that financial development also plays an important role in reducing poverty and inequality, which reinforces the prospective role of finance on welfare.

[2]Schumpeter (1912) writes "credit is essentially the creation of purchasing power for the purpose of transferring it to the entrepreneur, but not simply the transfer of existing purchasing power. The creation of purchasing power characterises, in principle, the method by which development is carried out in a system with private property and division of labor".

[3]For a thorough survey of the literature of finance and growth, see Levine (2005).

make use of principal component analysis in an attempt to reduce omitted variable bias and model uncertainty in growth analysis.

Thirdly, we also follow the advice by Bruno and Easterly (1998)—and the analysis by Rousseau and Wachtel (2000)—and make use of high-frequency annual data, so that by avoiding the averages we can better pinpoint the effects of financial development on economic growth during periods of macroeconomic instability. Finally, we take advantage of the novel panel time-series analysis, which allows us to deal with particular economic and statistical issues, so that we are able to provide new, reliable and informative estimates on the subject.

The remainder of the paper is as follows: the next section describes the data set and the empirical strategy utilised, and then reports and discusses the estimates obtained. The following section concludes the paper, it puts the results into context, and then it suggests some *policy* implications and also future related work.

Data, Empirical Strategy, and Results

Given data availability, the data set we use covers the period between 1980 and 2007, and four Latin American countries; namely Argentina, Bolivia, Brazil and Peru (i.e., *T=28* and *N=4*).

The growth rates of the real GDPs per capita *(GROW)* are provided by the Penn World Table (PWT) data set mark 6.3. The measures of financial development used are the ratio of the liquid liabilities to GDP *(M2)*, which is a measure of financial sector *size,* private bank credit over bank deposits, deposit money bank claims over deposit money bank and central bank claims, both measuring financial intermediaries *activity* in actually channeling resources from savers to borrowers, and stock market capitalisation over GDP, which is a measure of stock market *development*, all from

3

the Database on Financial Development and Structure provided by the World Bank[4].

Using the information above, we make use of principal component analysis to extract the unobserved common factors of these four different measures of financial development to construct *FINDEV*, so that we end up with a proxy for financial development which contributes not only to reduce omitted variable bias and model uncertainty, but also that presents more explanatory power. This is important because, with *FINDEV,* we are able to reduce the dimensionality of a set of prospective financial development explanatory variables that, in fact, contains most of the information provided by the aforementioned financial variables[5].

The control variables include the government's share in the real GDP *(GOV)*, which proxies for the size of government, the ratio of exports and imports to real GDP *(OPEN)*, a proxy for economic openness, and the ratio of investment to real GDP *(INV)*, as one of the main canonical determinants of growth, all from the PWT files. Moreover, we interact average years of schooling of those aged 25 and over (from the Barro and Lee data set) with urbanisation rates (from the World Development Indicators files) to construct an index for development *(DEV)*, which is supposed to capture the fact that fast-growing societies tend to be not only more educated, but also more urbanised (see Kuznets (1955)).

Furthermore, by using principal component analysis we are able to extract the unobserved common factors of three normalised Polity IV variables (i.e., democracy, constraints on the executive, and political competition), to construct a proxy for political regime characteristics *(POL)*, which not only reduces model uncertainty, but also takes into account that all four countries in the sample went through political transitions in the 1980s. Finally, the data on inflation *(INFL)* come from the Bu-

---

[4]For more on measures of financial development in general, see Demirgüç-Kunt and Levine (2001).

[5]See Huang (2005) for more on principal component analysis applied to financial development measures.

reaux of Census of the four countries, which captures the fact that all these countries experienced poor macroeconomic performance (at least in terms of inflation rates), in the 1980s and first half of the 1990s.

For the sake of clarity, in Figure One below we plot the data on GDP per capita and the baseline *M2* in Argentina, Bolivia, Brazil and Peru respectively. What we can see from this preliminary eyeball evidence is that in all four countries, GDP per capita and *M2* seem to be moving in the same direction, which indicates that they are somehow positively related to each other.

Moreover, the vertical lines in each panel indicate the hyperinflationary episodes that all four countries experienced either in the 1980s or 1990s, and it can also be seen that GDP per capita and *M2* suffered severe contractions either before or immediately after those episodes. Furthermore, we are also able to visualise that after the macroeconomic stabilisations of the 1990s, both variables have been displaying a consistent positive trend, which initially indicates that macroeconomic stability is, to say the least, a necessary condition for growth and financial development in all four countries.
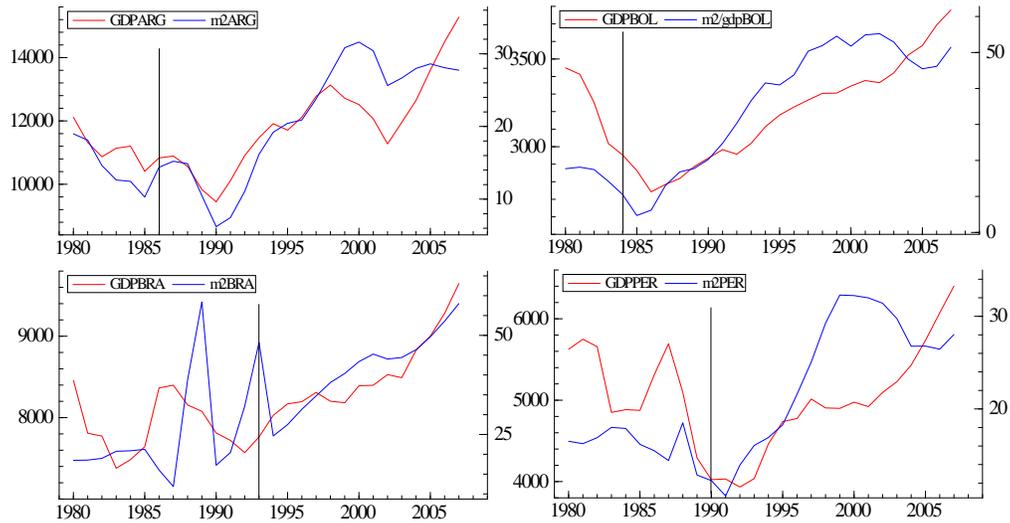
Figure 1: GDP per capita and Financial Development, Argentina, Bolivia, Brazil and Peru, 1980-2007. Sources: Penn World Table and Database on Financial Development and Structure files.

In addition, in Table One we present the correlation matrix of the variables used, and both measures of financial development, *M2* and *FINDEV,* present positive correlations with economic growth in the sample. This is a step further from Figure One above, and it suggests a positive *statistical* relationship between financial development and growth during the period investigated.

The control variables present the expected statistical signs against growth (i.e., *DEV*, *INV* and *OPEN* present positive correlations with growth, suggesting that more educated and urbanised societies, as well as higher investment and more economically open societies tend to grow faster). The proxy for government size, *GOV,* suggests that the stylised fact that bigger governments tend to be detrimental to growth is valid in the region. Finally, *POL* indicates that more politically polarised societies, or less democratic ones, tend to grow slower.

Table 1: The Correlation Matrix: Argentina, Bolivia, Brazil and Peru, 1980-2007.

	GROW	M2	FINDEV	DEV	INV	OPEN	GOV	POL
GROW	1							
M2	.209*	1						
FINDEV	.196	.593*	1					
DEV	.188*	-.069	.030	1				
INV	.216*	-.152	.072	.477*	1			
OPEN	.191*	.382*	.365*	.093	-.277*	1		
GOV	-.305*	-.160	-.439*	-.270*	-.157	-.609*	1	
POL	-.148	-.254*	-.061	-.086	.361*	-.347*	.211*	1

Sources: Penn World Table, Database on Financial Development and Structure, World Development Indicators, Barro and Lee, and Polity IV files. * represents significance at the 5% level.

Furthermore, in Figure Two we plot the OLS regression lines between *M2* and growth in Argentina, Bolivia, Brazil and Peru. What can be seen is that in all four panels there is a positive and statistically significant relationship between financial development and economic growth, which indicates that there is an *economic* relationship between these two variables (i.e., that more access to financial resources somehow contributes to generate economic activity and consequently faster growth in the region).

All the same, this initial inspection of the data, with all its caveats, suggests that finance presented a positive relationship with growth in the region during the period investigated (i.e., the data plots suggest that *M2* and growth moved in the same direction over time, the statistical correlations amongst both measures of finance and growth are positive, and the OLS regression lines indicate a significant positive

economic relationship between finance and economic growth).

This is important not only because we are able to capture particular positive comovements between finance and growth, but also because all four countries in the sample presented hyperinflationary bursts and severe macroeconomic instability for a considerable period of time in the 1980s and early 1990s. Nevertheless, finance has been positively related to economic growth even under severe macroeconomic mismanagement, which further highlights the potential of financial development in somehow generating growth and prosperity in the region.
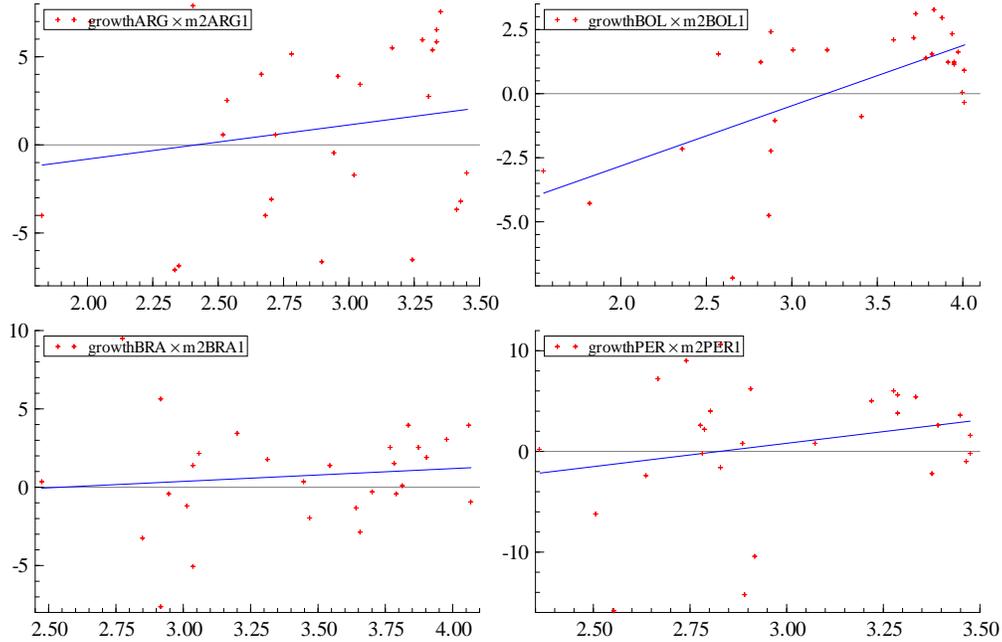

Figure 2: OLS Regression Lines, GDP Growth and Financial Development, Argentina, Bolivia, Brazil and Peru, 1980-2007. Sources: Penn World Table and Database on Financial Development and Structure files.

In terms of econometric modelling, since we have a $T > N$ data set, the empirical strategy is based on the relatively novel panel time-series analysis. Firstly, although most of the variables used are stationary by definition, or bounded within closed inter-

vals, for non-stationarity in the country time-series we use the Im, Pesaran and Shin (IPS (2003)) test, which allows for *heterogeneous* parameters and serial correlation. The IPS test consists of an augmented Dickey-Fuller regression for each variable of each country, and these are then subsequently averaged. The moments of the mean and variance of the average $\bar{t}$ are -1.43 and .62 respectively[6] [7].

Secondly, the issue of *heterogeneity* bias in *dynamic $T > N$* panels, which is caused because under wrongly assumed homogeneity of the slopes, the disturbance term is serially correlated and the explanatory variables x_s end up not being independent of the lagged dependent variable y_{t-1}. This is dealt with by the one-way Fixed Effects (FE) estimator which provides consistent estimates in dynamic models when $T \to \infty$, but it only considers heterogeneity of intercepts, and then by the Swamy's (1970) Random Coefficients (RC) estimator, which assumes heterogeneity of intercepts *and* slopes[8].

All in all, although these countries shared similar poor macroeconomic characteristics in the 1980s and 1990s, these estimators account not only for an important econometric issue, but also for the fact that some of these countries do indeed present different levels of economic development (Brazil and Argentina are known to be relatively more developed than Peru and Bolivia).

Furthermore, some would argue that there is economic and statistical *endogeneity*

---

[6] An alternative to IPS (2003) is the test by Levin, Lin and Chu (2002). However, this test assumes parameter *homogeneity*, and therefore does not consider a possible heterogeneity bias present in the data.

[7] Moreover, given that these countries shared some macroeconomic characteristics in the 1980s and 1990s, some would argue that there is between-country dependence present. However, the IPS test assumes the existence of between-country *independence*. An alternative that considers the existence of between-country dependence is proposed by Pesaran (2007), the cross-section IPS (CIPS) test. However, CIPS assumes that $N > 10$ and we have $N = 4$ in our data set. It is therefore thought that the IPS test in this case is slightly biased, but still informative and the best alternative available.

[8] The Mean Group estimator, proposed by Pesaran and Smith (1995), is also an alternative. However, this estimator is sensitive to outliers, a problem not faced by the RC estimator. In addition, GMM-type estimators are not an alternative under $T > N$ for the overfitting problem. See Bond (2002).

present (i.e., finance not being totally exogenous in determining growth). For example, Robinson (1952), and Lucas (1988) cast doubt that finance leads growth, and suggest that when growth leads, finance actually follows. Hence, we use instrumental variables estimation (i.e., the Fixed-effects with Instrumental Variables (FE-IV) estimator), with the inflation rate as the identifying instrument for the measures of financial development being estimated[9]. The estimates provided by the FE-IV estimator are asymptotically consistent and efficient as $T \rightarrow \infty$[10].

We therefore estimate static and dynamic models with different pooled estimators (i.e. the benchmark Pooled Ordinary Least Squares (POLS), FE, RC and FE-IV), so that different econometric *and* economic issues are dealt with, and more reliable and informative estimates provided. The basic estimated dynamic equation is as follows

$$(1) \qquad GROW_{it} = \alpha_i + \beta FINDEV_{it} + \gamma DEV_{it} + \delta INV_{it} + \epsilon OPEN_{it}$$
$$+ \varepsilon GOV_{it} + \zeta POL_{it} + \eta GROW_{it-1} + v_{it},$$

in which $GROW$ are the growth rates of the GDPs, $FINDEV$ is the proxy for financial development, which consists of the unobserved common factors of *M2*, private bank credit over bank deposits, deposit money bank claims over deposit money bank and central bank claims, and stock market capitalisation over GDP, DEV is the interaction between education and urbanisation, INV is the share of investment to GDP, $OPEN$ is a measure of economic openness, GOV is the share of government to GDP, and POL is a proxy for political regime characteristics.

In terms of results, firstly we report the IPS statistics—$GROW$ is -3.66, *M2* is

---

[9]For instance, Azariadis and Smith (1996), Huybens and Smith (1999), Boyd, Levine and Smith (2001) and Bittencourt (2008) suggest that financial development is, in fact, determined by inflation.

[10]For a more thorough discussion about panel time-series analysis in general, see Smith and Fuertes (2008) or Lee, Pesaran and Smith (1998).

-2.32, *DEV* is -2.56, *INV* is -2.43, *OPEN* is -2.22, *GOV* is -2.17 and *POL* is -2.69—and they all suggest that we can reject the null hypothesis of unit roots and accept in favour of the alternative that at least *one* variable of each country is, in fact, stationary. This indicates that further data transformations are not needed, and also justifies why panel-cointegration analysis is not pursued in this case.

Secondly, in Table Two—columns one, two, three and four—we report the static and dynamic baseline estimates of *M2* on growth using the POLS, FE and RC estimators respectively. Apart from the POLS *M2* estimates, which are positive and significant against growth, the other *M2* estimates are, in fact, *not* statistically significant, and even present the wrong sign. The two control variables presenting reasonable estimates are *INV* and *GOV,* with respectively positive and negative signs, which confirm that higher investment rates contribute to economic growth and that bigger governments tend to be detrimental to growth. Finally, the F* and Likelihood Ratio (LR) tests indicate that there is some evidence of country fixed effects and heterogeneity of intercepts and slopes, which justifies the use of the FE and RC estimators in this instance.

More importantly, after estimating the regression-based Hausman test and rejecting the null of exogeneity, we can then make use of the FE-IV estimator. We report the *M2* estimates in Table Two—columns five and six—and in this case, *M2* presents clear positive and statistically significant effects on growth, which confirms early evidence about the role of the liquid liabilities in promoting economic activity and consequently economic growth. Moreover, these results are also significant because, firstly we take into account a possible economic endogeneity problem, and secondly the Hausman test indicates that there is indeed statistical endogeneity, and therefore the use of the FE-IV estimator, with inflation as the identifying instrument, is well justified in this case. Essentially, *M2,* or the size of the financial sector, only

becomes significantly positive against growth once we extract the variation in $M2$ that is not correlated with the residual.

The controls INV and GOV continue to present their expected signs, positive and negative respectively, and the estimates are statistically significant. Furthermore, in the first-stage regressions (available upon request) the identifying instrument, $INFL$, presents negative and significant effects on $M2$, which firstly rules out the possibility of a weak instrument, and secondly highlights that the poor macroeconomic performance of the 1980s and early 1990s had not only a detrimental effect to financial development, but also serious indirect effects on growth.

Table 2: POLS, FE, RC and FE-IV Estimates of Finance on Economic Growth, 1980-2007.

			Static and Dynamic Models			
GROW	POLS (1)	FE (2)	FE (3)	RC (4)	FE-IV (5)	FE-IV (6)
M2	1.37 (1.71)	-.252 (-.21)	-.428 (-.35)	-.691 (-.46)	16.15 (2.18)	13.79 (2.04)
DEV	-.000 (-.01)	.013 (.86)	.011 (.75)	.019 (.66)	-.023 (-.77)	-.019 (-.72)
INV	.285 (2.26)	.463 (2.79)	.296 (1.65)	.515 (1.08)	.590 (2.10)	.475 (1.65)
OPEN	.014 (.35)	-.023 (-.18)	-.026 (-.21)	-.175 (-.65)	-.631 (-1.85)	-.545 (-1.77)
GOV	-.225 (-1.37)	-.370 (-1.82)	-.375 (-1.83)	-.734 (-2.83)	-.998 (-2.30)	-.864 (-2.24)
POL	-.604 (-1.50)	-.494 (-1.20)	-.445 (-1.08)	-.736 (-1.03)	-1.08 (-1.49)	-.888 (-1.33)
$GROW_{-1}$			.222 (2.22)	-.031 (-.24)		.167 (1.07)
F test	3.89	5.52	5.58			
F* test		2.97	1.94		1.80	1.50
R^2	.18	.08	.13			
LR test				18.92		
Hausman					-4.37	-3.56
Wald test				42.86	17.96	22.10

T-ratios in parentheses. Number of observations: $NT = 112$. The basic estimated equation is $GROW_{it} = \alpha_i + \beta M2_{it} + \gamma DEV_{it} + \delta INV_{it} + \epsilon OPEN_{it} + \varepsilon GOV_{it} + \zeta POL_{it} + \eta GROW_{it-1} + \upsilon_{it}$, in which $GROW$ is the growth rates of the real GDPs, $M2$ is the proxy for financial development, DEV is the interaction between education and urbanisation, INV is the share of investment to GDP, $OPEN$ is a measure of economic openness, GOV is the share of government to GDP, and POL is a proxy for political regime characteristics. The identifying instrument is $INFL$. POLS is the Pooled Ordinary Least Squares, FE is the Fixed Effects, RC the Random Coefficients and FE-IV the Fixed Effects with Instrumental Variables estimators.

Thirdly, in Table Three—columns one, two, three and four—we report the static and dynamic estimates of *FINDEV* on *GROW* using the POLS, FE and RC estimators. The *FINDEV* estimates are *not* statistically significant in this case either. Just as before, the control variables presenting reasonable estimates are *INV* and *GOV,* with respectively positive and negative signs, which suggest again that higher investment causes growth and that bigger governments are, in fact, detrimental to economic activity. There is also evidence of heterogeneity of intercepts and slopes, which justifies the use of the RC estimator in the dynamic instance.

In addition, after estimating the Hausman test and rejecting the null of exogeneity, we are then able to make use of the FE-IV estimator. The *FINDEV* proxy presents clear positive and statistically significant effects on growth, which highlights the role that financial development in general can have in generating economic growth in the region. Just as before, this is also important because financial development only becomes significant once we account for economic and statistical endogeneity, and therefore extract the variation in *FINDEV* that is not correlated with the residual.

The controls *INV* and *GOV* continue to present their expected signs, positive and negative respectively, however these estimates are not entirely statistically significant this time. Furthermore, in the first-stage regressions (which are available on request) *INFL* presents negative and significant effects on *FINDEV*, and this not only rules out the possibility of a weak instrument, but also highlights again the detrimental effect of high inflation to financial development and consequently to growth.

14

Table 3: POLS, FE, RC and FE-IV Estimates of Finance on Economic Growth, 1980-2007.

Static and Dynamic Models

GROW	POLS (1)	FE (2)	FE (3)	RC (4)	FE-IV (5)	FE-IV (6)
FINDEV	.013 (.04)	-.068 (-.13)	.013 (.03)	-1.16 (-1.28)	5.00 (2.24)	3.02 (2.05)
DEV	-.002 (-.86)	-.012 (-.67)	-.014 (-.82)	-.009 (-.22)	-.077 (-1.96)	-.052 (-1.88)
INV	.270 (1.96)	.255 (1.40)	-.000 (-.00)	.385 (.86)	.504 (1.69)	.125 (.53)
OPEN	.001 (.04)	.087 (.65)	.022 (.18)	.080 (.23)	-.074 (-.34)	-.078 (-.48)
GOV	-.379 (-2.09)	-.493 (-2.30)	-.570 (-2.86)	-.872 (-.90)	-.437 (-1.33)	-.543 (-2.18)
POL	-.765 (-1.18)	-.594 (-.88)	-.606 (-.97)	-2.56 (-.80)	-.580 (-.56)	-.599 (-.76)
$GROW_{-1}$			.380 (3.53)	-.000 (-.00)		.412 (3.04)
F test	3.19	2.67	4.46			
F* test		.48	.20		1.67	1.47
R^2	.21	.10	.15			
LR test				59.49		
Hausman					-3.91	-2.57
Wald test				25.14	19.42	37.47

T-ratios in parentheses. Number of observations: $NT = 112$. The basic estimated equation is $GROW_{it} = \alpha_i + \beta FINDEV_{it} + \gamma DEV_{it} + \delta INV_{it} + \epsilon OPEN_{it} + \varepsilon GOV_{it} + \zeta POL_{it} + \eta GROW_{it-1} + \upsilon_{it}$, in which $GROW$ is the growth rates of the real GDPs, $FINDEV$ is the proxy for financial development, DEV is the interaction between education and urbanisation, INV is the share of investment to GDP, $OPEN$ is a measure of economic openness, GOV is the share of government to GDP, and POL is a proxy for political regime characteristics. The identifying instrument is $INFL$. POLS is the Pooled Ordinary Least Squares, FE is the Fixed Effects, RC the Random Coefficients and FE-IV the Fixed Effects with Instrumental Variables estimators.

Essentially, the estimates reported above indicate that financial development played an important role in generating economic growth in a region which was plagued by macroeconomic mismanagement and hyperinflation during their political transitions in the 1980s and 1990s. However, the positive effect of finance on growth only surfaces once we take into account the economic and statistical endogeneity seen between finance, growth and the very macroeconomic instability seen at the time (i.e., inflation is confirmed as the main driving macroeconomic force behind finance, which in turn affects economic growth).

Ultimately, what is stressed here is not only the importance of extra financial resources in financing productive activities, even in societies displaying severe macroeconomic conditions, but also the need for macroeconomic stability in terms of low inflation rates. Certainly the effect of financial development in promoting growth would be larger without the hyperinflationary episodes seen in those countries in the 1980s and early 1990s, which contributed to reduce not only the size, but also the activity of financial intermediaries in allocating credit to potential entrepreneurs, and therefore in generating growth and prosperity in the region.

Concluding Observations

We investigated in this paper the role of financial development, or more widespread access to finance, in promoting economic growth in a panel of Latin American countries which experienced severe macroeconomic conditions in the 1980s and 1990s, and also political transitions in the early 1980s. The results, based on panel time-series analysis, suggest that, once we take into account the role of macroeconomic instability, financial development played a significant role in generating economic growth in the region, or alternatively speaking, Schumpeter is right after all. However, it must

16

be pointed out that the positive effects of financial development on growth could be even larger had those countries not allowed those hyperinflationary episodes to happen in the first place. However, those countries simply did not have the right institutional framework in place at the time.

The quality of the evidence presented is, to a certain extent, boosted not only because we carry out a case study on those Latin American countries which experienced poor macroeconomic performance and political transitions, but also because we use principal component analysis in an attempt to deal with model uncertainty in growth regressions. Furthermore, we avoid the averages and take advantage of the novel panel time-series analysis, so that we are able to deal with particular economic and statistical issues not covered by the previous studies, which can be interpreted as a step forward in terms of achieving better and more informative estimates on the subject.

Moreover, the importance of carrying out a historical study on the subject of financial development and growth is mainly because, no doubt, developing countries can indeed benefit from finance, however finance needs the right framework to thrive (i.e., macroeconomic stability and all the economic institutions that generate stability, such as central bank independence and sound fiscal authorities, must be in place as necessary conditions for development)[11]. Furthermore, it can be speculated that the financial liberalisation taking place in some of those countries in the 1990s, or the introduction of more competition in the financial sector, might have played a positive role in widening access to finance after the stabilisations of the 1990s. All in all, the institutional reforms that those countries implemented in the 1990s (with

---

[11]For instance, Singh (2006), Singh and Cerisola (2006) and Santiso (2006) highlight the importance of the much improved macroeconomic performance in Latin America recently in producing better economic outcomes from the 1990s onwards. Nevertheless, Carstens and Jácome (2005) warn that Brazil still has one of the least independent central banks in Latin America, which is always a cause for concern.

the implementation of inflation targeting and fiscal responsibility laws, and more competition) seem to have paid some dividends in terms of financial development and sustained economic growth after all.

About future work, the role of the financial liberalisation that took place in Argentina and Brazil in actually widening the access to finance is something that can be investigated. In addition, a comparison between these four Latin American countries with the four Asian Tigers, which presented macroeconomic stability combined with financial development and sustained economic growth, would certainly enrich this sort of analysis further.

To conclude, financial development played the role that Schumpeter predicted in promoting growth in Latin America, even under severe political and economic conditions. Nevertheless, these positive effects could have been even more significant had these countries implemented particular economic institutions, like central bank independence and fiscal responsibility laws, at the time of their political transitions in the 1980s[12]. All in all, financial development matters, so does macroeconomic stability as a necessary condition for finance and therefore growth and prosperity.

REFERENCES

Azariadis, C. and B. D. Smith. 1996. Private Information, Money, and Growth: Indeterminacy, Fluctuations, and the Mundell-Tobin Effect. Journal of Economic Growth 1: 309-332.

Beck, T., and R. Levine. 2004. Stock markets, banks and growth: panel evidence. Journal of Banking and Finance 28:423-442.

---

[12]Bittencourt (2010) suggests that, because of the distributional conflict, and some populist tendencies, some Latin American countries that transitioned from dictatorship to democracy in the 1980s suffered from severe macroeconomic instability during their transitional periods.

Beck, T., A. Demirguc-Kunt, and R. Levine. 2007. Finance, inequality, and the poor. Journal of Economic Growth 12 (1).

Beck, T., R. Levine, and N. Loyaza. 2000. Finance and the sources of growth. Journal of Financial Economics 58:261-300.

Bittencourt, Manoel. 2008. Inflation and financial development: evidence from Brazil. In UNU-WIDER working papers RP 2008/14.

Bittencourt, Manoel. 2010. Financial development and inequality: Brazil 1985-1994. Economic Change and Restructuring 43 (2).

Bittencourt, Manoel. 2010. Democracy, Populism and Hyperinflation[s]: Some Evidence from Latin America. In Working Papers 169, Economic Research Southern Africa, University of Cape Town.

Bond, Stephen R. 2002. Dynamic Panel Data Models: A Guide to Micro Data Methods and Practice. Portuguese Economic Journal 1 (2):141-62.

Boyd, J., R. Levine, et al. 2001. The Impact of Inflation on Financial Sector Performance. Journal of Monetary Economics 47: 221-248.

Bruno, Michael, and William Easterly. 1998. Inflation crises and long-run growth. Journal of Monetary Economics 41:3-26.

Carstens, A. and L. Jácome. 2005. Latin American Central Bank Reform: Progress and Challenges. In IMF Working Paper.

Demirguc-Kunt, A., and R. Levine. 2001. Financial structure and economic growth. Cambridge, Massachusetts and London, England: MIT Press.

19

Fischer, Stanley. 1993. The role of macroeconomic factors in growth. Journal of Monetary Economics 32:485-512.

Huang, Yongfu. 2005. What determines financial development? In Bristol Economics Discussion Papers 05/580.

Huybens, E. and B. D. Smith. 1999. Inflation, Financial Markets and Long-Run Real Activity. Journal of Monetary Economics 43: 283-315.

Im, Kyung So, M. Hashem Pesaran, and Yongcheol Shin. 2003. Testing for Unit Roots in Heterogeneous Panels. Journal of Econometrics 115 (1):53-74.

King, Robert, and Ross Levine. 1993. Finance and Growth: Schumpeter might be right. Quarterly Journal of Economics August.

Kuznets, Simon. 1955. Economic growth and income inequality. American Economic Review 45 (1).

Lee, Kevin, H. Pesaran, and R.P. Smith. 1998. Growth empirics: a panel data approach - a comment. Quarterly Journal of Economics 113:319-323.

Levin, Andrew, Chien-Fu Lin, and Chia-Shang James Chu. 2002. Unit Root Tests in Panel Data: Asymptotic and Finite-Sample Properties. Journal of Econometrics 108 (1):1-24.

Levine, Ross. 2005. Finance and growth: theory and evidence. In Handbook of Economic Growth, edited by P. Aghion and S. Durlauf. Amsterdam: North-Holland.

Levine, R., and S. Zervos. 1998. Stock markets, banks, and economic growth. American Economic Review 88:537-558.

Lucas, R. 1988. On the mechanics of economic development. Journal of Monetary Economics 22:3-42.

Pesaran, M. Hashem. 2007. A Simple Panel Unit Root Test in the Presence of Cross Section Dependence. Journal of Applied Econometrics 27.

Pesaran, M. Hashem, and Ron Smith. 1995. Estimating Long-Run Relationships from Dynamic Heterogeneous Panels. Journal of Econometrics 68 (1):79-113.

Robinson, J. 1952. The generalisation of the general theory. In The Rate of Interest and Other Essays. London: MacMillan.

Rousseau, P. L., and P. Wachtel. 2000. Equity markets and growth: cross-country evidence on timing and outcomes, 1980-1995. Journal of Banking and Finance 24:1933-1957.

Santiso, Javier. 2006. Latin America's Political Economy of the Possible. Cambridge, MA, The MIT Press.

Schumpeter, J. 1912. The theory of economic development. Cambridge, MA: Harvard University Press.

Singh, A. 2006. Macroeconomic Volatility: The Policy Lessons from Latin America. In IMF Working Paper.

Singh, A., and M. Cerisola. 2006. Sustaining Latin America's Resurgence: Some Historical Perspectives. In IMF Working Paper.

Smith, Ron, and Ana-Maria Fuertes. 2008. Panel Time-Series. In London: Centre for Microdata Methods and Practice. Institute for Fiscal Studies.

Swamy, P.A.V.B. 1970. Efficient Inference in a Random Coefficient Regression Model. Econometrica 38 (2):311-323.