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Director del Centro: D. Luis Angel Lerena Guinea, catedrático de Economía Internacional de la Universidad Complutense de Madrid.

Director de Programas de Investigación: D. Xavier Vives

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FINANCIAL REPRESSION AND ECONOMIC GROWTH

Nouriel Roubini and Xavier Sala-i-Martin

1. Introduction.

It is a widely accepted idea that the financial sector matters for the process of economic development.[1] In fact, this is the sector where a large part of an economy's savings are intermediated towards productive investment purposes. Since the rate of capital accumulation is a fundamental determinant of long term growth, the efficiency of the financial sector (where the allocation of savings to investment projects occurs) is potentially important for the long term performance of an economy.

The objective of this paper is to analyze the effects of distortions in the financial markets (in particular, financial repression) on the rate of economic growth.[2] We would like to address theoretically and empirically a number of important questions. What is the role of financial development in the process of economic growth ? Is financial repression harmful to growth ?

Our interest in these issues was partly stimulated by the observation that the growth experience of Latin American countries has been different from the rest of the countries of the world. It is by now a well known fact that the cross sectional empirical studies by Barro (1991) and others do not explain the Latin America experience very well given that a regional dummy for this group of countries is significantly negative.

Among the many explanations given in the literature of the weaker growth performance of Latin America, we find that policies that systematically repress the financial sector are among the most convincing [3]. Along these lines, an additional goal of this paper is the investigation of the extent to which such repressive policies have had an impact in the economic growth performance of a large cross section of countries during the last quarter of a century. Our analysis, therefore, is not confined to the small sample of Latin American nations.

In order to link the empirical findings to some theory, in section 2 we present a model of growth, financial development and seigniorage that we think captures some of the most important elements of the problem: governments may choose not to allow full financial development (ie, choose to repress the financial sector) in order to collect easy revenue. We model this revenue in the form of inflation tax, but it is clear that policies of financial repression imply various other forms of implicit subsidization of the public sector (such as cheaper credit to the government and public enterprises). Furthermore, we find that such repressive policies hurt economic growth given that financial intermediation is an important component of the aggregate production function and, in particular, if the marginal product of capital of an economy more financially developed is larger than the marginal product of a less financially developed economy. A number of arguments of why this may be the case are also exposed in section 2. For instance, if financially developed economies can allocate their inputs better than less developed ones, for any stock of inputs the aggregate output is larger the more financially developed the economy.

In section 3 we explore the empirical relation between economic growth and a variety of measures of financial repression. We systematically find that policies of financial repression have negative effects on economic growth. As the theoretical arguments presented suggest, we find a systematic inverse relation between growth and several measures of financial repression as well as a negative relation between growth and inflation rates. In particular, countries that repress their financial sector tend to grow less than countries that don't, even after we control for the other determinants of growth used by Barro (1991) such as initial income, initial investment in education, government consumption, price distortions for investment goods, or measures of social unrest such number of assassinations and military coups.

Furthermore we find that financial repression contributes to explain the different behavior of Latin American countries: that is, in many specifications a regional dummy for these countries is no longer significant after we control for the the effects of these policy variables. In the final section we present some concluding remarks.

2. A simple model of growth, seigniorage and financial development.

In this section we want to make some theoretical connections between the role of financial development, financial repression and growth. It is a

[1] For example, the 1989 World Development Report of the World Bank was devoted to the role of financial markets and financial intermediation in the process of development. Also, an extensive literature in the 1970's has studied the the role of financial markets and the effects of financial repression on economic growth. See McKinnon (1973) and Shaw (1973) for some seminal contributions.

[2] Recent theoretical and empirical studies on the effects of financial repression on growth include Easterly (1990), De Gregorio (1991), Levine (1990) and Roubini and Sala-i-Martin (1991).

[3] In a separate paper (Roubini and Sala-i-Martin (1991)) we also study the effects of policies of trade protection on economic growth. We find evidence that protectionist policies lead to lower growth rates and contribute to explain the Latin American growth puzzle.

widely accepted fact that the financial sector matters for growth. It is also a widely documented fact that a lot of governments in less developed nations have introduced all kinds of distortions in that particular sector. Before and during the 1970s, many development economists favored such policies of financial repression on several grounds[4]. First, it was argued that the government needed to impose anti usury laws thereby intervening in the free determination of interest rates. Second, it was argued that a strict control and regulation of the banking system would give the monetary authorities a better control over the money supply. Third, it was thought that governments knew better than markets (or private banks) what the optimal allocation of savings was or what kind of investments were more or less desirable from a social perspective. Fourth, financial repression was identified with interest rates below market rates which reduced the costs of servicing government debts.

Even though most economists today agree that a lot of these arguments do not call for policies of financial repression, in this paper we want to study the question of why may some governments choose to repress the financial sector of the economy and what are the effects of doing so on long term growth prospects. Our view is that the main reason why government stay in the way of private financial evolution is that the financial sector is the potential source of "easy" resources for the public budget. In order to show how this is true and how this relates to growth, we will construct a very simple stylized model of economic growth and money where the government has the option and capability of not allowing the financial sector to operate at its full potential. Governments can in principle do that by introducing all kinds of regulations, laws, other non-market restrictions to private banks' and other general financial intermediaries behavior. The source of public income stemming from this intervention will be modeled through inflation tax [5]. Our model, as most models of money demand will have the implication that more financial development (which in the money demand literature can be interpreted as a reduction in the transaction costs of converting non liquid to liquid assets) will reduce the need for people to carry money. Hence, if the government allows for financial development, it will also see the inflation tax base, and therefore the chance to collect seigniorage, reduced. To the extent that the financial sector increases the efficiency of the economy (ie increases the amount of overall output given the total amount of inputs), the choice of the degree of financial sophistication will have real effects on the level of GDP and on the marginal product of capital. If the production function is sufficiently non-concave (ie if there are no diminishing returns or if there are slowly diminishing returns) there will be effects on the steady state growth rate or in the growth rate for a large period of time. We will attempt to show how all these effects may work with the following simple and stylized model.

Following Sidrauski (1967), we will assume that the economy is populated by infinitely lived consumers or dynasties who derive utility from the only consumption good and from real money stock. We should think about the money stock as "making life easier" since it allows people to get consumption goods without having to go to the bank and transform bonds into consumption goods all the time. In this sense, money services serve the same purpose as refrigerators: even though we do not "eat" them, they make live easier since they allow people to consume without having to go to the store all the time. Further we will assume that the marginal utility of money is decreasing in financial development. That is, "the more automatic teller machines (the more financially developed the economy) the lower the marginal benefit of holding money". We think of this assumption as reflecting the negative effect of financial development on the transaction costs (costs of transforming bonds into money). As Feenstra (1986) has shown, we could redefine consumption and introduce money and transaction costs explicitly in the budget constraint rather than in the utility function without changing the basic results. We will further assume that the utility function is time separable, that is

$$(1)\quad U = \int_0^\infty e^{-\rho t} N(t) u(c(t), m(t))\,dt$$

where ρ is the personal discount rate, $N(t)$ is the total amount of people alive at time t and $N(t)$ will be assumed to grow at an exogenous rate n. By normalizing initial population to 1, we have $N(t)=e^{nt}$. The instantaneous per capita utility, $u()$, is a function of per capita consumption, $c(t)$, and per capita real money balances, $m(t)$. In order to achieve tractability and get close form solutions for the growth rate we will also assume the instantaneous utility function to be of the following form

$$(2)\quad u() = [c(t)^{\alpha} m(t)^{\beta(\lambda)}]^{1-\sigma}/(1-\sigma)$$

where σ is positive, and $\beta'(\lambda)<0$. The cost of achieving tractability however will be that the money demand functions will be "too simple". In particular, the interest elasticity will be independent of the degree of financial development. We will come back to this problem later. Notice that the assumed utility has the property that the marginal utility of money is a decreasing function of λ (that is $\beta'(\lambda)[c^{\alpha(1-\sigma)} m^{\beta(\lambda)(1-\sigma)-1}](1+\ln(m))<0$)[6]. Individuals will be assumed to maximize utility subject to the budget constraint

$$(3)\quad \dot{F}/N + \dot{M}/PN = r(1-\tau)F/N + V/N - c$$

where F are non monetary assets such as capital and bonds, M is nominal money, τ is an income tax rate, r is the real interest rate on real assets F and v is some lump sum transfer from the government. Equation (3) says that per capita savings (nonconsumed resources) are equal to per capita investment plus money accumulation. If we define little case variables as the real per capita versions of their capital letter counterparts ($m=M/PN$, $f=F/N$, $v=V/N$, $k=K/N$)

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[4] See for instance Shaw (1973), Mckinnon (1973), and Fry (1988) for an extensive analysis on this subject.

[5] Clearly this is not the only source of income the government gets from repressing the financial sector. Mandatory purchases of government debt and below market interest rates are other important sources of public income. The regulation of the reserve requirement plays an important role but we think of it as a part of the overall inflation tax or seigniorage (see Brock (1989)).

[6] Later on we will talk about the case where $\alpha+\beta$ are equal to one. This of course will imply that α is a positive function of λ.

and we denote the per capita real assets by z ($z=m+f$), we can rewrite the household's budget constraint as

$$(3)' \quad \dot{z} = r(1-\tau)z + v - c - nz - Rm$$

where R is the after tax nominal interest rate $R=r(1-\tau)+\pi$, where π is the (expected) inflation rate[7]. We can set up the hamiltonian and get the following set of first order conditions

$$(5) \quad e^{-(\rho-n)t}(1-\sigma)a(c_t^{a(1-\sigma)-1})(m_t^{\beta(A)(1-\sigma)}) = \lambda_t$$

$$(6) \quad e^{-(\rho-n)t}\beta(A)(1-\sigma)(c_t^{a(1-\sigma)})(m_t^{\beta(A)(1-\sigma)-1}) = \lambda_t R_t$$

$$(7) \quad \lambda_t(r(1-\tau)-n) = -\dot{\lambda}$$

$$(8) \quad \lim_{t\to\infty} \lambda_t z_t = 0$$

We can divide (5) by (6) and we get the usual money demand function

$$(9) \quad m_t^d = \beta(A)c_t/aR_t$$

That is, real money demand is a positive function of consumption and a negative function of the opportunity cost of holding it, the nominal interest rate. Unlike the Baumol-Tobin "square root" money demand function, this one does imply increasing returns to monetary services. In other words, it does not imply that a doubling of consumption needs is associated with less than double amount of monetary services. Notice also that money demand is a negative function of the level of financial sophistication of the economy. Again, this reflects the idea of financial development lowering the transaction cost of transforming non liquid into liquid assets. It is worth noticing at this point that the utility function assumed has the property of yielding an interest rate elasticity of money equal to 1. In particular, the elasticity is independent of A. Equations (5) and (7) imply a rate of consumption growth equal to

$$(10) \quad (\dot{c}/c)(1-a(1-\sigma)) = r(1-\tau) - \rho + \beta(A)(1-\sigma)(\dot{m}/m)$$

that is, consumption growth is a positive function of the difference between the after tax real interest rate and the discount rate, and it is a positive function of the rate of accumulation of real money balances. If the nominal interest rate is constant (and we will show later that in steady state it will be) we can take logs and derivatives of (9) and find that

$$(11) \quad \gamma_c = \dot{c}/c = \gamma_m = \dot{m}/m$$

which can be used in (10) to derive the consumption accumulation equation.

$$(12) \quad \dot{c}/c = (1-(1-\sigma)(\beta+a))^{-1}(r(1-\tau) - \rho)$$

Notice that if $a+\beta=1$ [8], equation (12) is the usual

$$(12)' \quad \dot{c}/c = (r(1-\tau)-\rho)/\sigma$$

This usual (Euler) equation can be rewritten as $r(1-\tau)=\sigma\dot{c}/c+\rho$ and interpreted as follows: At the optimum, individuals will be indifferent between consuming and saving one more unit of resources. The return to saving one unit is the after tax return to savings $r(1-\tau)$. The return to consuming one unit today rather than tomorrow is ρ (the natural discount rate) plus a term that involves consumption growth times the elasticity of substitution. If $\sigma>0$, that is if people want to smooth consumption and if they see consumption as growing ($\dot{c}/c>0$), then they want to bring some of this larger future consumption to the present. Hence, the term $\sigma\dot{c}/c$ somehow reflects a return to early consumption.

The next step is to specify the behavior of firms. We will model the production side of the economy with the following function

$$(13) \quad Y_t = \varphi(A)K_t$$

where Y is output, K is a broad measure of capital steck and $\varphi'(A)>0$. Following Rebelo (1989), Lucas (1988) and Barro (1990), the production function is assumed to be linear in the broad measure of capital. This capital stock may include physical private as well as human capital. It may also include publicly provided inputs along the lines suggested by Barro (1990) and Barro and Sala-i-Martin (1990a). Although this linear assumption is crucial to get close form solutions and non-zero steady state growth, it is not essential to our story. We could have decreasing returns to capital, in which case the steady growth rate is zero, just as in the neoclassical growth model. If we interpret K in a broad sense, the transition to the steady state will not be as fast as the strict version of the neoclassical model predicts. Hence, we may want to think as the present model as describing an economy characterized by "long transitions towards steady states".

The parameter A in (13) will be assumed to be related to the level of financial development. We will think of the financial sector as increasing

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[7] We are implicitly assuming that the income tax system is fully indexed. That is, we are assuming that the income tax is on the real rather than nominal interest rate. Some tax systems in the real world are not fully index, which provides additional inflation revenue for the government.

[8] This assumption may seem restrictive but the result implied by it is quite general. Following Grossman and Helpman (1991) we could solve the model by defining an expenditure variable $E(t)$ made out of the sum of consumption spending and costs of holding money. We could easily redefine the utility function and budget constraints in terms of expenditure. Individuals could be thought as finding their optimal choice in two steps, in the first they would find the optimal intertemporal path of expenditure, which would yield something like $\dot{E}/E = (r(1-\tau)-\rho)/\sigma$. Notice the similarity with $\dot{c}/c$ in (12)' the text. The second step would be to find the optimal allocation between consumption and money. This would be done by equalizing the marginal rate of substitution between money and consumption to the nominal interest rate. This corresponds to equation (9) in the text. This approach would yield results that are similar to the ones we find here for more general utilities. The steady state growth rates of consumption and real money may not be equal under some functional forms, but the relative price between the two goods will ensure that expenditure follows the growth path dictated by the Euler equation above.

the microeconomic efficiency of the whole macroeconomy: it improves the link between savings and investment; it contributes to efficiently allocate the capital stock to its best use; it also helps collect and screen information (in a world of imperfect or costly information, individuals may not know who wants to borrow or lend). Further, if financial intermediation is nonexistent or very costly, private entrepreneurs will be forced to self finance their investment projects. This may lead them to undertake projects that are smaller (and therefore notably less efficient) than the ones they would undertake otherwise. An additional problem is that they may have to self accumulate nominal assets which get systematically eroded by high inflation rates. From a macroeconomic or aggregate production function point of view, all this means that economies more financially developed will be able to transform a given amount of inputs, K, into a larger amount of output, Y. This is why we postulate a production function that is an increasing function of A, the degree of financial sophistication of the economy.

We should mention that there may be other factors affecting the productivity of capital. These factors, some of which have been recently emphasized in the endogenous growth literature, could be knowledge (Romer (1990)) or public spending (Barro (1990) and Barro and Sala-i-Martin (1990a)). We will abstract from these for simplicity so we will think of $\varphi(A)$ as being a function of A alone[9].

We will assume that firms behave competitively and that they maximize the present value of all future cash flows. Because there are no adjustment costs of any kind, we know that the optimal behavior is the equalization of the real interest rates to the marginal product of capital after depreciation

$$(14) \quad r = \varphi(A) - \delta$$

That is, at the optimum, firms will be indifferent between nailing one more unit of capital to the floor (and thereby getting the marginal product of capital minus the loss due to depreciation) and purchase a bond with real return equal to r[10]. By equalizing (12) and (14) we get the following growth rate of consumption

$$(15) \quad \dot{c}/c = ((1-(1-\sigma)(\beta+\alpha))^{-1}((\varphi(A)(1-\tau) - \rho-\delta(1-\tau))$$

Equation (15) is another form of what some people call "Superneutrality result" first derived by Sidrauski. Changes in the rate of growth of money do not affect the steady state rate of consumption growth. We should note, however, that this does not mean that money is "superneutral" because changes in the rate of money creation will have an effect on the desired stock of real money, and (as its name indicates) real money is a real variable that reflects the provision of monetary services which, in our setup, affect utility but in other setups affects consumption due to larger transaction costs.

[9]This assumption is also made in Greenwood and Jovanovic (1990).

[10]Notice that as it stands the model has no labor so the wage rate is zero. We know from Romer (1986) that we could postulate a production function of the form $Y=\varphi(A)K^{\nu}L^{1-\nu}\bar{K}^{\psi}$, where $\bar{K}^{\psi}$ represents a learning by doing externality and get exactly the same steady state growth rate as long as $\psi+\nu=1$. Notice that in this case the wage rate would be well defined, and the social budget constraint would be exactly the same.

As a particular case, again, in equation (15) if $\alpha+\beta=1$, and we set the depreciation rate to zero, the growth rate is exactly the one we would get in the simple Rebelo (1990) Ak model

$$(15)' \quad \dot{c}/c = (\varphi(A)(1-\tau)-\rho)/\sigma$$

In order to close the model we need to specify the behavior of the government. In general, the government faces the following budget constraint

$$(16) \quad G + V + rB^{g} = \dot{M}/P + \dot{B}^{g} + T$$

where G is government spending, V are the total lump sum transfers that appear in the private budget constraint, B^g is total real public debt, $\dot{B}^g$ is the real budget deficit, $\dot{M}/P$ is the collection of seigniorage and T is tax collection. The budget constraint, therefore, essentially says that the government spends resources in purchasing goods, G, transferring income to households, V, and paying interest in past debt, rB^g. The resources of the government are taxes, T, and seigniorage, $\dot{M}/P$. The difference between expenditure and revenue is the budget deficit $\dot{B}^g$.

We will make some further simplifying assumptions so as to isolate the important effects. First, for simplicity, we will not allow the government to issue debt so we will set

$$(17) \quad B^{g}=\dot{B}^{g}=0$$

While this is a restrictive hypothesis, we concentrate in this paper on the steady state of this economy in which the government is satisfying its intertemporal budget constraint and (domestic and external) debt accumulation is equal to zero. Our assumption would also be reasonable reasonable for governments that have limited access to international borrowing and who enjoy little confidence from private domestic savers, maybe because the existing levels of debt are so extremely high that everyone believes that there is a large incentive for the government to default. Under these conditions, the government will have to do without any domestic or international borrowing.[11]

Second, we need to make some assumption on how the government sets G. Since the economy will be growing we would like to assume that the government can spend increasing amounts of resources (otherwise the ratio of government spending to GDP goes to zero asymptotically). We shall assume therefore that G is a constant proportion, ϵ, of private consumption

$$(18) \quad G = \epsilon C$$

where ϵ will be the policy parameter that tells how large government spending is relative to the economy. We express G as a proportion of C but it would be equally easy to assume that G is a constant fraction of total output or capital stock, given that in steady state they all grow at the same rate.

[11]We leave to a future study the analysis of an open economy in which international borrowing and lending is explicitly considered.

Third, we have already assumed when we discussed the consumers side that the tax revenue is based on income taxes, with constant average and marginal tax rate τ. That is,

(19) $T=\tau r k$

And finally, we will assume that the government sets the nominal growth rate of money at a constant level μ so

(21) $\dot{M}/M=\mu$

The resulting budget constraint in per capita terms is the following

(22) $\dot{m} = g + v - \tau(\varphi(\lambda)-\delta)k - m(\pi+n)$

where the firms' first order condition (14) has been used and where $g=\epsilon c$. Before plugging (22) in (3)' to get the social budget constraint, let us realize that, because there is no international borrowing and lending, private bonds are in zero net supply so we can identify f (non liquid assets) with k (real productive capital stock):

(23) $\dot{k} = \varphi(\lambda)k - (\delta+n)k - c - g$

This resource constraint says that the increase in the capital labor ratio is the difference between total output per capita, and depreciation (which includes the part of the capital stock given to new workers) plus private consumption plus public spending. We can divide both sides of (23) by k and use the condition $g=\epsilon c$ to get

(24) $(\dot{k}/k - \varphi(\lambda) + \delta + n)/(1+\epsilon) = -c/k$

notice that in steady state all the left hand side of (24) is constant (by definition $\dot{k}/k$ is constant in steady state). The growth rate of the capital labor ratio is therefore equal to the growth rate of consumption per capita. By using (13) we can also see that output per capita will also grow at this common rate. Hence, the growth rate of all the per capita real variables is given by (15).

We can now go back to the government budget constraint and rewrite (16) as

(25) $g = m\mu + \tau(\varphi(\lambda)-\delta)k$

where we used the fact that $\dot{m}/m=\mu-\pi-n$ and we neglected transfers. Of course we can make use of equation (9) which says that the per capita stock of real money is a negative function of financial development, a positive function of per capita consumption and is inversely related to the nominal interest rate. By plugging (9) back in (25) we get the final public budget constraint

(26) $g = \mu\beta(\lambda)c/\sigma R + \tau(\varphi(\lambda)-\delta)k$

where $R=r(1-\tau)+\pi = (\varphi(\lambda)-\delta)(1-\tau)+\pi$. Equation (26) says that total government spending must equal the total tax revenue. The tax revenue, in turn is equal to the sum of inflation and income taxes. In steady state the inflation rate is given by $\pi = \mu-n-\gamma_m$ where γ_m is the growth rate of real money balances. We know from previous analysis that $\gamma_m=\gamma_c$, that is real money balances grow at the same rate as the rest of the real variables. Hence, the steady state inflation rate is equal[12] to $\pi= \mu-n-((\varphi(\lambda)-\delta)(1-\tau)-\rho)/\sigma$.

Seigniorage in this model is given by the first term of the right hand side of (26). It clearly depends on the degree of financial development, λ, through three different channels. First, higher financial development (high λ) lowers the per capita demand for money at given nominal interest rates. This is the term $\beta(\lambda)$. Second, higher financial development increases real interest rates and, consequently, increases the first component of the nominal interest rate which further reduces money demand. And third, higher financial development increases the growth rate of the economy which reduces the steady state inflation rate. Given the real interest rate, this effect works in the direction of reducing the nominal interest rate which increases the demand for real balances. Unless the utility function is almost linear ($\sigma=0$), the first and second effects clearly dominate the third effect so the per capita stock of real money is a decreasing function of the level of financial development[13].

Let us now assume that the government, through regulation and other non market interventions, can control the degree of financial development, λ. Given the money growth rate μ and the income tax rate, the government faces a trade off between inflation and income taxes: financial development increases income and therefore increases the income tax base. On the other hand, it decreases real money demand and therefore the inflation tax base. Notice that the derivative of total revenue with respect to λ is equal to

(27) $\partial REVENUE/\partial\lambda = \frac{\mu c}{\sigma R}\beta'(\lambda) - \frac{\mu\beta(\lambda)c}{\sigma R^2}(\partial R/\partial\lambda) + \tau\,\varphi'(\lambda)$

is ambiguous. This derivative has three terms. The first term is negative, the second is ambiguous and the third is positive. As we argued above, if the utility function is not close to linear (ie if σ is not close to zero), the first and second terms add up to some negative number (so the inflation tax revenue is a negative function of λ)[14]. This means that, depending on the parameters of the model, some short sighted[15] governments will choose to

[12]This has been derived under the assumption $\sigma+\beta=1$.

[13]Notice that if $\sigma=1$ (and this is a very common assumption in the literature of consumption theory which corresponds to logarithmic utility) the second and third effects exactly offset so we are left with the first negative effect.

[14]Recall that if the utility is logarithmic ($\sigma=1$), then the second term is exactly zero so the first two terms are clearly negative. If the utility function is even more concave than the logarithmic function, the first two terms are negative and, therefore, so is the sum.

[15]We said that "short sighted" governments may want to financially repress the economy. By this we mean governments (or parties) that do not care much about what happens in the future or how they will get future revenues. Notice that whenever the government chooses to repress the financial sector not only shrinks the current base for income taxation but, because the economy grows at a lower rate it both reduces future income tax revenues and future real money balances. Both of these effects go in the direction of reducing future revenues. If these governments are still in power in the future they will choose to repress the financial sector still more. This may lead to an inflationary/financial repression spiral that will lead to the further reduction of growth rates. Persson and Tabellini (1990) present a systematic overview of models where political distortions shorten the horizon of government and lead to "short-sighted" economic behavior.
Longer horizon government (such as those of stable democracies) will not choose to repress the economy in order to collect seigniorage since they will very possibly care about the whole path of revenue rather than about the short run finances only. And we saw that repressing the financial sector increases short term inflation tax revenues but it hurts long run growth and long run revenue.

repress the financial sector of the economy in order to get easy monetary revenue. In particular, governments will find it profitable to repress the economy if $\varphi'(\lambda)$ is small, that is financial repression affects current GDP by a little and/or if. Furthermore, governments that purposely repress the financial sector so as to collect higher inflation taxes will also tend to choose high inflation rates (since the total inflation tax collection is a positive function of both the tax rate and tax base). Of course, to the extent that the financial sector contributes to the overall macroeconomic productivity of the economy, the choice of repressing the financial sector will entail low long run growth for the whole economy, as we see in equation (15).

A simple extension of model could incorporate the possibility of tax evasion. Suppose for instance that the income tax collection is not $\tau(\varphi(\lambda)-\delta)k$ but, rather $\tau\zeta((\varphi(\lambda)-\delta)k,\tau)$, where ζ is a nonlinear function of income and tax rates that reflects tax evasion. We can think of $\zeta()$ as income that is actually reported to the government which is a positive function of income but a negative function of the tax rate. Different countries may have different functions $\zeta()$ which possibly due to different efficiencies in collecting income taxes and different private attitudes with respect to reporting private income. Under these circumstances, countries with $\zeta'()$ close to zero, that is countries where changes in income do not lead to large changes in reported income (ie, where tax evasion is large) will choose to repress the financial sector in order to expand money demand and increase the tax rate on money.

Summarizing, we saw that in order to increase the revenue from money creation, short sighted governments may choose to increases per capita real money demand by repressing the financial sector. As a side effect this policy will tend to reduce the amount of services the financial sector provides to the whole economy and, given the total stock of inputs, the total amount of output will be reduced. This will reduce the asymptotic marginal product of the inputs that can be accumulated (such as private physical, private human or public capital) and, consequently, the steady state rate of growth.

The story we just explained has the following empirical implications. Countries that are financially repressed will have higher inflation rates, lower (before tax) real interest rates, higher base money per capita and lower per capita growth than countries that are financially developed. We will try to test some of these implications in the empirical section of the paper.

Before we conclude this theoretical section we should mention that the model presented here could be extended to more general utility functions. In particular and as we mentioned earlier, the utility function assumed here was very convenient to get an easy analytical solution. Yet it had the implication that the elasticity of money demand with respect to the interest rate was a constant independent of the degree of financial development. More general utility functions will not have such a property. If the interest elasticity of money demand is a positive function of λ, then not only short sighted governments will find it possible to increase the inflation tax base through financial distortion but they may find it optimal. Intuitively, the Ramsey rule of optimal taxation says that the government should choose the tax rates in such a way that the elasticities across goods are equalized. If the elasticity of income with respect to the income tax rate is high enough (ie, if people can evade income taxation easily) the government may find it optimal to decrease the money demand elasticity through financial repression and increase the inflation tax rate in order to collect a certain amount of revenue. The simplifying assumptions we made on the utility functions allowed us to find a simple steady state growth rate, but they do not allow us to study this optimal inflation tax problem.

3. Financial repression and growth: the empirical evidence.

The theoretical model presented in the previous section suggests an important relation between financial repression, inflation and economic growth: in particular financial underdevelopment and financial repression might be harmful to economic growth.

The objectives of this section are twofold. First, we will present some further econometric evidence on the relation between the degree of financial development and economic growth. Second, we will test whether the degree of financial repression might account for the evidence that, after controlling for the usual determinants of growth, the Latin American region appears to be growing more slowly than the rest of the world. The empirical strategy that we follow is similar to the one used in a number of empirical studies on growth. We start from the results obtained in Barro (1991) on the determinants of economic growth in large cross section of countries and add measures of financial development (repression) to these basic equations [14]. The objective is to test whether, after controlling for the usual determinants of growth used in these studies (such as initial income, measures of human capital, size of the government, political and institutional variables), the degree of financial repression contributes to explain the cross country differentials in rates of economic growth. We will also test whether the significant regional dummies for Latin American growth found by Barro (1991) are explained by measures of financial repression in that region.

As a starting point we replicate in table 1 the basic growth equations estimated by Barro (1991). We regress the average growth of per-capita income of 98 countries in the 1960-1985 period (GRG085) on the following regressors: the initial value of GDP (GDP60), the initial amount of human capital as proxied by primary and secondary school enrollment rates in 1960 (PRIM60 and SEC60), the amount of "non-productive" government spending as proxied the average ratio of real government consumption (exclusive of defense and education) to real GDP (GOV); the distortion in the price of investment goods as proxied by the deviation of the 1960 PPP price of investment goods from the sample mean (PPPIGODEV); the degree of political instability as proxied by the number of revolutions and coups per year (REVCOUP) and the number of assassinations (ASSASS). The results of this basic regression (presented in

[14] The testing approach that we follow implies that we are testing the transition to the steady state rather than the steady state itself. In particular we are not testing endogenous growth models versus neoclassical models like Quah and Rauch (1990) or Bernard and Durlauf (1990) try to do. We believe that such a question cannot be addressed with a short sample period of only 30 years. This is why we take Barro's approach rather than the steady state analysis of Quah and Rauch. Furthermore, it is hard to believe that the countries in the sample were in the steady state during the period considered (for example many of them were coming out of a major war at the beginning of the period). The analysis of Quah and Rauch, instead relies heavily on the unlikely assumption that the countries are in the steady state all the time.

column (1) of table 1) are familiar: the initial level of income is negatively correlated with growth consistent with the hypothesis of conditional convergence of growth rates (see also Barro and Sala-i-Martin (1990b)); the measures of human capital accumulation positively affect growth; non-productive government spending and political instability are harmful to economic growth; and distortions in the price of investment goods are negatively related with growth.

In column (2) regional dummies for Latin America and Africa are added to the basic regression. As first observed by Barro (1991), per-capita income growth in Latin America and Africa appears to be lower than the rest of the world even after controlling for the other determinants of economic growth. In particular, the parameter estimate for the Latin American dummy implies that the per capita growth rate in that region is 1.1% lower than the rest of the world after holding constant the other variables. While one interpretation of these results is that there are regional differences in economic growth, the interpretation that we will pursue in this section is that these regional dummies proxy for other omitted variables that are the actual determinants of the lower economic growth in these two regions.[17] In particular, we will present evidence that proxies of the degree of financial development are important omitted variables that explain the lower economic growth observed in Latin America. Columns (3) and (4) in table 1 replace the initial level of GDP in 1960 with its logarithmic value (GDP60L): the results are essentially the same as before. The only difference is that the coefficient on GDP60L is now interpreted as an elasticity: its value of -0.014 implies that for each country the convergence to its steady state growth rate is achieved at at 1.4% rate per year. This steady state growth rate is in turn determined by values of the other explanatory variables in the regression.

We now want to expand the Barro regression by introducing a number of measures of the financial repression. The theoretical model presented in the paper implies that there might be an important relation between financial development, inflation and economic growth; in particular, financial underdevelopment and financial repression may be harmful to economic growth. The literature on financial repression also suggests that financial repression is associated with negative real interest rates, high required reserve ratios and the choice of a high inflation tax [18]. Therefore we would like to test empirically the hypothesis that distortions in financial markets and the degree of financial development are important determinants of the rate of economic growth.

In order to test empirically the relation between the financial factor and economic growth, it is necessary to obtain measures of the degree of financial development or financial repression. The approach that we take here is to derive alternative proxies for the financial characteristics of a country and test their explanatory power in our growth regressions.

The literature on financial repression suggests that economies that are financially repressed are characterized by credit rationing and artificially low real interest rates. Governments in financially repressed economies tend to control deposit and lending rates below the level of the inflation rates so that real interest rates will tend to be low and/or negative. Agarwala (1983) and Gelb (1988) present strong evidence on the negative relation between financial repression and real interest rates in a sample of over thirty developing countries; they also show that the simple bivariate relation between economic growth and financial repression (as proxied by real interest rates) is negative: low real interest rates are correlated with low economic growth. Easterly (1990) presents evidence that a proxy for financial repression based on Gelb's data significantly affects the growth rate in a cross-country sample of 32 developing countries.

Agarwala (1983) classifies the 31 countries in its sample according to their degree of distortions in the financial markets. The degree of distortion is defined as being high when real interest rates during the 1970's were less than minus 5%; low when real interest rates were positive and medium when they were in the 0 to minus 5% range. Starting from the Agarwala sample we collected additional information on a sample of economically advanced countries and added them to the sample. We thus create a dummy variable FINREP for 53 countries that takes value one when real interest rates are positive; two when real interest rate are negative but higher than minus 5%; and 3 when real interest rates are lower than minus 5%.

In table 2 we consider first the reference Barro regression.[19] We observe that the reduction in sample size from 98 to 53 countries implies two differences: the African dummy and REVCOUP (proxing for political instability) are now statistically not significant. The remaining variables are not significantly affected by the change in sample size.

In column (1) in table 2 we include the proxy FINREP for financial repression in the basic growth regression. This variable appears to have the right sign and is statistically significant: a higher degree of financial repression leads to lower economic growth. We can also observe that, once we control for financial repression, the Latin American dummy in column (2) not only loses its statistical significance but its point estimate drops by more than half. This suggests that one of the reasons for the significant regional dummy in the original Barro regressions might be the high degree of financial repression in Latin America [20]. From the economic point of view, the coefficient estimate on the FINREP variable implies that the move from an economic with a low level of financial repression to one with a high level of

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[17]It has been suggested that the significant Latin American dummy might be due to the inclusion in the sample of the 1980's, the period in which the growth rate of that region was significantly negative because of the effects of the debt crisis. This suggestion, however, is not right. The Latin American dummy remains significant in all the regressions in Table 1 event if we consider as the dependent variable the growth rate in the 1960-1980 period. This suggest that, while the debt crisis might have bad negative growth rate effects, the relative low growth rates of Latin America predate the onset of the debt crisis. Moreover, our proxies of financial repression presented in tables 2-6 below remain significant if we restrict the sample to the 1960-1980 period.

[18]See McKinnon (1973), Shaw (1973), Fry (1982, 1988), McKinnon and Mathieson (1981).

[19]We do this because in many studies (for example Easterly (1990)) the results of regressions with additional variables are compared with those of regressions based on very different samples. Such a procedure obscures the reason for the change in significance of particular regressors: i.e. whether it is driven by the addition of omitted variables or the change in sample.

[20]Of the nine Latin American countries in the Agarwala sample, eight are characterized by a high degree of financial repression in the 1970's. These are: Argentina, Brazil, Chile, Jamaica, Mexico, Uruguay, Bolivia and Peru. The FINREP variable, however, is not a simple dummy for Latin America since several other countries in the sample are characterized by a high level of financial repression.

financial repression implies a lowering of the growth rate around 1.4% per year (see column (3)).[31]

Next, table 3 presents the results of regressions where a composite index of distortions in financial markets, factors markets and trade is introduced in the growth regression. This composite index (DISTORT) is derived from Agarwala as a weighted average different distortion measures [32]. This dummy variable takes value one when the overall distortions degree is low; two when the distortion level is medium; and three when it is high. The coefficient estimate of DISTORT has the expected sign and is statistically significant: a higher degree of overall financial, trade and other distortions is associated with lower per-capita growth. Consistent with previous results, the regional dummy for Latin America appears to be statistically insignificant when we introduce this composite measure of distortions. The coefficient estimate of the DISTORT variable implies that the move from an overall low level of economic distortions to a high level of economic distortions implies a reduction in the growth rate of 3.1% per year.

Next, in table 4 we present the results of regressions where the Agarwala measure of real interest rate distortions is substituted with the one created by Gelb (1988) and used by Easterly (1990). The Gelb measure differs from the one in Agarwala by considering a different sample of countries and measuring real interest rates in the 1980's. When the distortion dummy is defined as a zero/one variable taking value one when real interest rates are negative (FINREP1), the sign of the coefficient is correct but statistically not significant (see column (1) and (5)). However, when the variable is defined as taking value one when real interest rates are strongly negative (less than minus five percent), table 12 shows the corresponding dummy (FINREP2) is significantly negative (columns (2),(3) and (4)): strongly negative real interest rates lead to low real growth [33]. These results suggest that, while a moderate degree of financial repression may not affect excessively economic growth, a strong degree of financial repression is associated with significantly lower economic growth (around 1.1% of per capita growth per year). In these regressions, the point estimate of the Latin American dummy is reduced but the variable remains significant.

As discussed in the theoretical section of the paper, one of the reasons why government follow policies of financial repressions is to expand the tax base on which seigniorage is collected. In particular, a high coefficient of required reserve for commercial banks will force them to hold a greater amount of non-interest bearing monetary reserves; this represents an important source of seigniorage for the government in many developing countries. As argued by McKinnon (1982), a high reserve ratio proxies for the degree of financial underdevelopment and/or repression; therefore, we expect economic growth to be lower in countries with a high ratio of reserves to money. We define the reserve ratio (RESERVE) as the ratio of commercial bank reserves to the money supply (M1 and quasi money) and we compute the average ratio for the 1960-1984 period; the maximum sample we get is 58 countries. In table 5 we present the regressions with the RESERVE variable; since the variables REVCOUP and ASSASS are insignificant in this 58-country sample they are dropped from the regressions in columns (1) and (2). In the regression in column (1) the reserve variable is statistically significant while in column (2) (where the regional dummies are included in the regression), the reserve variable is marginally significant.[34] We also observe that the RESERVE variable is not sufficient, by itself, to drive away the regional dummies. The results in table 5 are consistent with the theoretical model in this paper where a high degree of financial repression is achieved, among other means, through high required reserves for commercial banks and leads to a lowering of economic growth.

The theoretical model also suggest that countries characterized by a high degree of financial repression will witness higher rates of inflation. Financial repression and underdevelopment, by expanding the tax base for seigniorage (through high required reserve ratios and increased money demand) will also lead the government to choose a higher level of the seigniorage tax, i.e. a higher inflation rate. In order to test such a hypothesis, we add to the basic growth regression the average inflation rate in the 1960-1985 period. The results are presented column (1)-(3) in table 6. The inflation rate enters with the right sign and is statistically significant: a higher inflation rate is correlated with lower economic growth [35]. More specifically, the coefficient estimate implies that a 10% inflation rate per year is associated with a lower per capita growth rate of 0.5% per year.

It should be observed that the empirical association of inflation with growth does not imply a causal relation between inflation and growth. The model presented in the previous section rather suggests that financial repression leads to negative real interest rates, high required reserve ratios and the the choice of a high inflation tax.[36]

The results of this section are consistent with the implications of the theoretical model presented above and with previous studies on the effect of financial repression on economic performance. Controlling for other determinants of growth, a high degree of financial underdevelopment and/or financial repression will lead to lower economic growth. The result is robust to the alternative measures of financial repression derived and used in the econometric analysis in this section. Moreover, the regressions show that once, we control for the degree of financial repression, the coefficient on

[31] It should also be observed that, while in this table (and the following ones) the measures of financial repression are (statistically and economically) significant determinants of growth rates, the R^2 suggests that the contribution of these variables is relatively modest and that a significant part of the growth variance remains to be explained. In Roubini and Sala-i-Martin (1991) we show that measures of the orientation of the trade regime contribute significantly to explain the cross sectional variance of growth rates.

[32] See Agarwala (1983) for a detailed description of the construction of this variable.

[33] The results that we obtain with FINREP2 are similar to those in Easterly (1990). However, we consider a larger sample of countries (52 instead of 32) that includes the industrial countries.

[34] Column (3) shows that, when introduce the otherwise insignificant variables REYCOUP and ASSASS, the reserve varible loses its statistical significance.

[35] Kormendi and McGuire (1985) find a similar effect of inflation on economic growth.

[36] This high relation between different measures of financial repression is evident the correlation coefficients between inflation rates, reserve ratios and measures of financial repression. These coefficients, not reported here because of lack of space, show that low real interest rates (high values of FINREP) and high required reserve ratios are high correlated with inflation rates; also, high required reserve ratios are positively associated with high distortions in financial markets.

the Latin American dummy falls in absolute value and, in many cases but not all, is not statistically significant. This result suggests that policies of financial repression contribute to explain why the Latin American region appears to have grown relatively slower than the rest of the world over the 1960-1985 sample period.

4. Concluding Remarks.

We analyzed the relation between the degree of financial development and the growth performance of a large cross section of countries at the theoretical and empirical levels. We presented a theoretical model of financial development, inflationary finance and endogenous growth. We argued that one of the reasons why some governments may choose to repress the financial sector is that it delivers easy inflationary revenue since financial repression induces private agents to carry a larger stock of nominal money, the base for the inflation tax. We also showed how this financial repression reduces the growth rate of the economy.

In the third section we presented some empirical evidence on the relation between measures of financial repression and growth for a large sample of countries. We derived some variables that capture the degree to which the financial sector is distorted and confirmed the predictions of the theory in that financial repression affects growth negatively, inflation rates and growth rates are positively related and reserve ratios and growth are negatively related.

As we proceeded along, we tested the significance of a regional dummy for Latin American countries. We found that, unlike the variables used in Barro (1991), several of our proxies for financial repression tend to make the Latin American dummy disappear. This suggests that a fraction of the weak growth experience of the Latin American countries might be explained by the policies of financial repression followed by the governments in this region.

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Data Appendix

Variable Definitions

Taken from the Barro-Wolf Data Set:

GRG085	Annual growth rate of per capita GDP 1960-1985
GDP60	GDP in 1960
PRIM60	Primary school enrollment Rate, 1960
SEC60	Secondary school enrollment rate, 1960
GOV	Average of the real government consumption (exclusive of defense and education) to real GDP
PPI60DEV	Deviation of the 1960 PPP value of the investment deflator from the sample mean
REVCOUP	Number of revolutions and coups per year (1960-85 or sub-sample)
ASSASS	Number of assassinations per million population per year
LAT.AMER.	(0, 1) dummy variable for Latin America
AFRICA	(0, 1) dummy variable for sub-Saharan Africa

Other Variables:

DISTORT (1, 2, 3) index of overall price distortions. Source: Agarwala (1983) and information on additional 21 countries.

FINREP (1, 2, 3) index of degree of real interest rate distortions. Source: same as for DISTORT

FINREP1 (1, 2, 3) index of degree of real interest rate distortions. Source: Gelb (1988) and information on additional 23 countries

FINREP2 (0, 1) index of degree of real interest rate distortions. Source: Gelb (1988) and information on additional 23 countries

RESERVE Ratio of commercial banks' reserves to money. Source: International Financial Statistics of the IMF

INFG085 Average CPI inflation rate, 1960-1985. Source: International Financial Statistics of the IMF

Table 1: Barro Growth Regressions

	(1)	(2)	(3)	(4)
dep. var.	GR6085	GR6085	GR6085	GR6085
no. obs.	98	98	98	98
constant	0.0320	0.0354	0.0171	0.0242
	(0.0073)	(0.0073)	(0.0079)	(0.0079)
GDP60	-0.0072	-0.0066	--	--
	(0.0011)	(0.0010)		
log_GDP60	--	--	-0.0149	-0.0140
			(0.0029)	(0.0027)
SEC60	0.0287	0.0113	0.0222	0.0057
	(0.0088)	(0.0081)	(0.0092)	(0.0100)
PRIM60	0.0238	0.0262	0.0324	0.0303
	(0.0062)	(0.0065)	(0.0073)	(0.0070)
GOV	-0.1300	-0.0998	-0.1312	-0.1010
	(0.0323)	(0.0284)	(0.0336)	(0.0290)
PPI60DEV	-0.0142	-0.0142	-0.0177	-0.0166
	(0.0056)	(0.0049)	(0.0058)	(0.0049)
REVCOUP	-0.0201	-0.0161	-0.0220	-0.0193
	(0.0069)	(0.0070)	(0.0080)	(0.0078)
ASSASS	-0.0032	-0.0024	-0.0005	-0.0008
	(0.0019)	(0.0018)	(0.0022)	(0.0021)
LAT.AMER.	--	-0.0140	--	-0.0112
		(0.0032)		(0.0035)
AFRICA	--	-0.0115	--	-0.0147
		(0.0042)		(0.0043)
adj.R-sq.	0.5032	0.5806	0.4787	0.5525
std.err.	0.0131	0.0120	0.0134	0.0124

Table 2 The Role of Financial Repression

	reference	(1)	(2)
dep. var.	GR6085	GR6085	GR6085
no. obs.	53	53	53
constant	0.0473	0.0548	0.0592
	(0.0094)	(0.0098)	(0.0103)
GDP60	-0.0068	-0.0080	-0.0073
	(0.0012)	(0.0012)	(0.0012)
SEC60	0.0120	0.0143	0.0079
	(0.0089)	(0.0079)	(0.0086)
PRIM60	0.0213	0.0265	0.0200
	(0.0091)	(0.0092)	(0.0091)
GOV	-0.1339	-0.1330	-0.1188
	(0.0382)	(0.0334)	(0.0356)
PPI60DEV	-0.0316	-0.0278	-0.0261
	(0.0134)	(0.0143)	(0.0132)
REVCOUP	-0.0132	-0.0079	-0.0104
	(0.0086)	(0.0069)	(0.0074)
ASSASS	-0.0048	-0.0053	-0.0051
	(0.0030)	(0.0023)	(0.0028)
FINREP	--	-0.0089	-0.0072
		(0.0028)	(0.0033)
LAT.AMER.	-0.0111	--	-0.0061
	(0.0060)		(0.0055)
AFRICA	0.6622	--	-0.0105
			(0.0052)
	0.0102		
adj.R-sq.		0.6787	0.6931
std.err.		0.0099	0.0097

Table 3 The Role of Financial Repression

	reference	(1)	(2)
dep. var.	GR6085	GR6085	GR6085
no. obs.	53	53	53
constant	0.0473	0.0728	0.0778
	(0.0094)	(0.0113)	(0.0116)
GDP60	-0.0068	-0.0078	-0.0071
	(0.0012)	(0.0011)	(0.0011)
SEC60	0.0120	0.0153	0.0072
	(0.0089)	(0.0075)	(0.0074)
PRIM60	0.0213	0.0154	0.0092
	(0.0091)	(0.0087)	(0.0088)
GOV	-0.1339	-0.1318	-0.1133
	(0.0382)	(0.0345)	(0.0339)
PPI60DEV	-0.0316	-0.0210	-0.0189
	(0.0134)	(0.0132)	(0.0129)
REVCOUP	-0.0132	-0.0041	-0.0068
	(0.0086)	(0.0053)	(0.0057)
ASSASS	-0.0048	-0.0048	-0.0047
	(0.0030)	(0.0020)	(0.0026)
DISTORT	--	-0.0173	-0.0156
		(0.0044)	(0.0045)
LAT.AMER.	-0.0145	--	-0.0059
	(0.0050)		(0.0040)
AFRICA	-0.0111	--	-0.0117
	(0.0060)		(0.0047)
adj.R-sq.	0.6622	0.7152	0.7393
std.err.	0.0102	0.0093	0.0089

Table 4 The Role of Financial Repression

	REFERENCE	(1)	(2)	(3)	(4)	(5)
dep. var.	GR6085	GR6085	GR6085	GR6085	GR6085	GR6085
no. obs.	52	52	52	52	52	52
constant	0.0495	0.0483	0.0525	0.0525	0.054	0.0524
	(0.0081)	(0.0101)	(0.0088)	(0.0087)	(0.0082)	(0.0092)
GDP60	-0.0067	-0.0063	-0.0067	-0.0060	-0.0064	-0.0068
	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0011)	(0.0013)
SEC60	0.0160	0.0143	0.0236	0.0158	0.0156	0.0145
	(0.008)	(0.0076)	(0.0074)	(0.0064)	(0.0071)	(0.0082)
PRIM60	0.0153	0.0134	0.0107	0.0084	0.0103	0.0139
	(0.0078)	(0.0086)	(0.008)	(0.0082)	(0.0076)	(0.0079)
GOV	-0.1377	-0.1214	-0.1716	-0.1358	-0.142	-0.1371
	(0.0440)	(0.0467)	(0.0431)	(0.0470)	(0.0464)	(0.0446)
PPI60DEV	-0.0182	-0.0218	-0.0221	-0.0214	-0.0194	-0.0184
	(0.0054)	(0.0057)	(0.0059)	(0.0053)	(0.0053)	(0.0057)
REVCOUP	-0.0143	--	-0.0058	--	-0.0074	-0.0135
	(0.0110)		(0.0108)		(0.0108)	(0.0115)
ASSASS	-0.0048	--	-0.0052	--	-0.0051	-0.0049
	(0.0034)		(0.0035)		(0.0035)	(0.0350)
FINREP1	--	-0.0040	--	--	--	-0.0030
		(0.0055)				(0.0052)
FINREP2	--	--	-0.0142	-0.0108	-0.0083	--
			(0.0046)	(0.0046)	(0.0045)	
LAT.AMER.	-0.0149	-0.0154	--	-0.0115	-0.0111	-0.0135
	(0.0050)	(0.0053)		(0.0051)	(0.0051)	(0.0049)
AFRICA	-0.0149	-0.0134	--	-0.0112	-0.0125	-0.0143
	(0.0068)	(0.0083)		(0.0065)	(0.0061)	(0.0070)
adj.R-sq.	0.6367	0.5988	0.6111	0.6385	0.6511	0.6308
std.err.	0.0107	0.0113	0.0111	0.0107	0.0105	0.0108

Table 5 The Role of Financial Repression

	reference	(1)	(2)	(3)
dep. var.	GR6085	GR6085	GR6085	GR6085
no. obs.	58	58	58	58
constant	0.0375	0.0322	0.0353	0.0388
	(0.0092)	(0.0071)	(0.0072)	(0.00843)
GDP60	-0.0065	-0.0087	-0.0068	-0.0066
	(0.0017)	(0.0016)	(0.0017)	(0.0016)
SEC60	0.0105	0.0315	0.0114	0.0106
	(0.0136)	(0.0120)	(0.0120)	(0.0125)
PRIM60	0.0244	0.0294	0.0265	0.0245
	(0.0082)	(0.0048)	(0.0067)	(0.0074)
GOV	-0.1279	-0.1500	-0.1068	-0.1223
	(0.0458)	(0.0368)	(0.0407)	(0.0459)
PPI60DEV	-0.0174	-0.0148	-0.0141	-0.0146
	(0.0057)	(0.0065)	(0.0053)	(0.0052)
REVCOUP	-0.0096	--	--	-0.0062
	(0.0067)			(0.0076)
ASSASS	-0.0032	--	--	-0.0029
	(0.0019)			(0.0020)
RESERVE	--	-0.0387	-0.0301	-0.0202
		(0.0159)	(0.0161)	(0.0201)
LAT.AMER.	-0.0123	--	-0.0103	-0.0097
	(0.0040)		(0.0044)	(0.0045)
AFRICA	-0.0135	--	-0.0140	-0.0140
	(0.0058)		(0.0056)	(0.0056)
adj.R-sq.	0.6352	0.5854	0.6370	0.6364
std.err.	0.0113	0.0120	0.0112	0.0113

Table 6 The Role of Financial Repression

	reference	(1)	(2)	(3)
dep. var.	GR6085	GR6085	GR6085	GR6085
no. obs.	65	65	65	65
constant	0.0423	0.0393	0.0469	0.0396
	(0.0076)	(0.0094)	(0.0079)	(0.0074)
GDP60	-0.0068	-0.0077	-0.0069	-0.0066
	(0.0010)	(0.0012)	(0.0010)	(0.0011)
SEC60	0.0171	0.0348	0.0179	0.0204
	(0.0082)	(0.0087)	(0.0082)	(0.0076)
PRIM60	0.0198	0.0246	0.0194	0.0229
	(0.0067)	(0.0078)	(0.0065)	(0.0067)
GOV	-0.1396	-0.1765	-0.1441	-0.1370
	(0.0370)	(0.0393)	(0.0353)	(0.0364)
PPI60DEV	-0.0064	-0.0089	-0.0076	-0.0092
	(0.0066)	(0.0081)	(0.0067)	(0.0069)
REVCOUP	-0.0167	-0.0144	-0.0142	--
	(0.0086)	(0.0089)	(0.0083)	
ASSASS	-0.0023	-0.0026	-0.0027	--
	(0.0018)	(0.0024)	(0.0019)	
INF6085	--	-0.0690	-0.0453	-0.0527
		(0.0236)	(0.0231)	(0.0264)
LAT.AMER.	-0.0152	--	-0.0142	-0.0146
	(0.0037)		(0.0039)	(0.0039)
AFRICA	-0.0163	--	-0.0155	-0.0141
	(0.0048)		(0.0046)	(0.0052)
adj.R-sq.	0.6512	0.5678	0.6695	0.6508
std.err.	0.0101	0.0114	0.0100	0.0103

FUNDACION BBV

SEDE Y CENTROS OPERATIVOS DE LA FUNDACION

Alcalá, 16 - planta quinta
28014 Madrid
Teléfs. (91): 374 89 39
374 89 59
374 89 38
Fax (91): 374 89 30

SEDE
Plaza de San Nicolás, 4
48005 Bilbao

Gran Vía, 12 - planta segunda
48001 Bilbao
Teléfs. (94): 487 52 52
487 44 79
487 44 73
Fax (94): 423 44 18