

RESUMO

O objetivo desta pesquisa é mostrar empiricamente que há uma relação positiva entre a estabilidade política-institucional e a poupança. Em primeiro lugar, a pesquisa procura aprofundar, vis-à-vis a literatura contemporânea sobre o tema, a análise teórica microeconômica da determinação da poupança privada, levando em consideração argumentos derivados da Nova Economia Institucional. Em segundo lugar, a pesquisa envolve seis testes em cross-section, considerando economias em desenvolvimento e desenvolvidas, dentro de um modelo de determinação de poupança que incorpora um índice de satisfação do direito de propriedade (PROP) como uma das variáveis explicativas. A principal conclusão, empírica, reforça a recomendação normativa segundo a qual direitos de propriedade bem definidos e garantidos pelo Estado são fundamentais para assegurar a estabilidade institucional necessária para fomentar a formação de poupança na economia.

PALAVRAS-CHAVE

Poupança; Direito de propriedade; Estabilidade política; Nova Economia Institucional.

ABSTRACT

The aim of this research is to show *empirically* the existence of a positive relationship between political-institutional stability and savings. Firstly, the research will seek the understanding of the microeconomic analysis related with savings decisions departing from a New Institutional Economics approach. It will be considered the up to date literature about the subject. Secondly, It will be made an empirical cross-section test, which will consider developed and underdeveloped economies. The saving determination model will use as an independent variable a

property rights satisfaction index (PROP) as one of the independent variables. The basic normative conclusion reinforces the perception that well-defined and enforced property rights are essential to secure the institutional stability necessary to bust savings in the economy.

KEY WORDS

Savings; Property rights; Political stability; New Institutional Economics.

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POLITICAL STABILITY, PRIVATE SAVINGS AND ECONOMIC GROWTH

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I. INTRODUCTION

“ (...) Will people save? The right answer is that it largely depends on the returns they expect, and those returns depend on property rights in place “. Ranseyer (1997, p.11)

“ Researches have argued that economic growth in the country is affected by the security of property rights in that society. Those who provide funds goes capital formation expect to be able to receive the earnings produced by their savings. Consequently, savers have to be assured, to the reasonable degree, that they will have access to the earning of their saves. Political instability has the negative impact on the security of property rights and, the result, lowers the level of domestic savings and subsequent capital formation “. Mbaku (1997, p. 94)

Why savings rates are low in Latin America, if compared with East Asia? Why have some economies higher savings and growth rates than others? Are property rights important to explain cross-countries differences in savings? How institutions and institutional stability could affect savings decisions? Is political stability and property rights design important variables to explain public and private decisions concerning savings? Is a property rights enforcing fiscal state a pre-condition to improve savings and particularly, private savings?

All of these questions, and others like them, concern different aspects of the behaviour of the economic agents (public and private) related with institutional stability and economic decisions. The objective of this paper is to show that institutions and institutional stability are important variables to answer these questions and another one: Couldn't have property rights enforcement any relationship with savings decisions?

The objective of this research is to show, analytic and empirically, that the political stability can be an important factor in the determination savings in the economy. It represents a further development of the work developed in *Institutional Stability, Credibility and Private Saving to continue: An Analysis of Political Economy* (Silva, 1998)¹.

Firstly, the paper will deepen the theoretical analysis established in this previous research, paying attention to the role played by the property rights enforcement in savings decisions. We are going to summing up some basic aspects derived from contract theory based on property rights analysis. As affirmed in Silva (1998, p.2), Edwards (1997) demonstrates, using public choice arguments and empirical evidences, that the institutional instability can decrease public saving. However, that paper did not establish any relationship between institutional instability and savings *lato sensu*, i.e., including private savings. The central point of this paper is to show empirically that the political instability can also rebound negatively in the formation of private saving.

Secondly, we are going to resume the current models, visions and theories about savings differences among different economies, paying special attention to the Latin American case.

¹ Research report of the Department of Researches and Publications of the Fundação Getúlio Vargas, São Paulo, Brazil (NPP/EAESP/FGV-SP).

Thirdly, following the modern political economy literature about the theme, we are going to do an empirical test trying to measure the impact of the property rights enforcement on savings. It will be pointed out some important aspects of the use of political and institutional data in positive political economy models. Finally, we are going to explain some important empirical results derived from econometric tests made in this paper. On the methodological point of view, this paper will establish an empirical analysis between political instability and saving using a property rights satisfaction index (PROP). The objective is to establish a measured of the impact of the political instability on the saving decisions, complementing, as affirmed, the results of Edwards (1997).

Finally, our basic conclusion is that property rights, as like as basic ordinary institutions, matter when we want to explain different saving rates among economies. This point of view, we suppose, represents an advance in the most recent literature about the theme and could supply some food for thought to economic policies aiming savings improvement in developing economies like the Latin American ones.

II. INSTITUTIONS, PROPERTY RIGHTS, AND SAVINGS

As it was proposed in Silva (1998), the central hypothesis is that the theories and traditional models that work with savings decisions neglect the role of the political-institutional instability. The majority of the choices taken by the economic agents as, for example, between consumption and saving and investment decisions involve risk. Institutional instability generates uncertainty and credibility lack among the economic agents because the growing risk of broken contracts and government's discretionary interventions changing in the rules of the economic and political game. Non enforced property rights can affect savings decisions. This vision will be underlying this empirical research.

Considering the public sector there is saving when exists fiscal surplus and negative saving when there is deficit. Additionally, in an open economy, external savings can complement the domestic saving. Institutions, and their quality, affect savings behaviour and capital inflow. For example, in the Brazilian case, constitutional reforms could have a positive effect on the reduction of the public deficit and, therefore, they could increase the supply of domestic resources for investment and assure the reception of long term resources from overseas. On the other hand, strong macroeconomic fundamentals and the consolidation of the stability, as well as the setting up of structural reforms in public choice institutions could really contribute to improve domestic savings. Even so, an increment of the private saving would be conditioned by other institutional and constitutional reforms.

To a further understanding of the problem proposed in this article, it is necessary some basic considerations about the nature of savings. Considering macroeconomic accountability, savings were defined as the residual of the product of the economy. That is, if we discount from the GDP the consumption of the whole society, we obtain an amount that remains as the available resources to investment. In an economy with private agents and the government, we can define the domestic saving as everything that is not consumed by the families and by the government.

However, considering microeconomic features, private and public savings have different characteristics. Public saving depends on public choices and they are related to political and institutional factors. For example, elections can interfere more directly creation (or not) of fiscal deficits. In this sense, public saving depends on the general conditions prevailing in the political market, as like as institutional and constitutional design and governance conditions).

On the other hand, private saving is resulted by individual or households choices between present and future consumption. This decision can involve several reasons and private savings depend on variables as like as (i) the interest rate, (ii) the existence (or not) of altruism between generations, (iii) the degree of dependence of

the economy and its demographic structures, (iv) economic policy, as in the case of fiscal incentives, and (v) the development of the financial markets. During the nineties, there were developed many studies about savings formation and they tried to analyse the relative impact of these and other variables on private saving. Nowadays, there is a lot of interest respect this subject and, for example, in studies comparing United and Japan and Latin America and Asia. By the way, the Brazilian and Latin American cases represent a challenge to the researcher's imagination and they reveal some peculiarities concerning the determinant of savings. In fact, economists are not very conclusive about how to improve savings, definitely a pre-condition to boost economic growth in the region.

Recent studies about the determination of private saving do not consider a fundamental variable, which we define as the political and institutional instability. The credibility lack in the stability of the rules of the economic game, mainly the rules related with property rights, should be an important variable for the explanation of low saving rates, which pervades many economies.

The State and the Constitution (or the set of rules that restrict the public agents' action in the political market) are part of the scenario that base private economic decisions, as like as saving decisions and this is not embraced by the great majority of the economic literature. The existence of institutional stability, and therefore, credibility concerning institutions and contracts depends on the law and on the incentive structures, or more directly, property rights established. However, an excessive discretionary power could create, for example, institutional instability and credibility lack.

Traditional models neglect the role of the political-institutional instability and credibility lack on consumption and saving decisions. Institutional instability generates uncertainty and credibility lacks because the government can change the rules of the economic and political game.

The connection between institutional instability and credibility could be established as follow. Institutional instability arises wherein there is an increase in the uncertainties due the volatility of the institutional apparatus. Therefore, the credibility in the institutional stability could be affected negatively by the frequent breaking of the property rights, of the contracts and of the economic policy (including industrial and commercial policies). The instability of the rules of the political market itself can generate uncertainty and institutional risk, with the break in the agents' credibility or decrease of the degree of rational belief that they possess regarding the stability of the rules of the game in the market of goods and services.

However, we consider that the decisions of governments constituted under unstable political markets can affect (i) the stability of the rules of the game, (ii) the agents' credibility concerning the enforcement of the property right and of the contracts, and therefore (iii) private choices involving accumulation of assets.

For this reason, a deep reform of the State should enter in the agenda of many developing economies. Such reform should contemplate the creation of constitutional and infra-constitutional rules that limit (i) the government's discretionary power, and generate (ii) conditions of structural stability, limiting the capacity of chronic deficits, since there is a high correlation between macroeconomic instability and political instability. For example, there is nothing assuring that a simple social security reform, supposing the implementation of pension funds, is itself a source for domestic saving and a way to improve savings (the Chilean case is always reminded here). There will be no advance in this case without any consideration about he possibility to isolate pension decisions from political-institutional risk. In practical terms, the insulation of the pension funds from political risk would involve, for example, (i) the clear definition of the property rights on future financial assets, (ii) the creation of insurance systems, and (iii) the limitation of the state's discretionary power.

The implementation of constitutional and infra-constitutional rules, which represents a guarantee to fiscal discipline and in a healthy federalism would also represent a progress in the sense of building a scenario that really motivates saving decisions. For example, chronic macroeconomic instability, which generally leads an economy to stagflation and hyperinflation, represents risk of informal breaking of the property rights on financial assets in the future. For this reason, the agenda of the constitutional reforms in developing economies should include, as we proposed above, suggestions to improve the quality of economy's and public choice's institutions. Otherwise, the normative propositions, as well as the models, will be always incomplete. Above all, if people do not have warranties on their property rights, why will they save?

Latin America's economic history tends to show that, in fact, the political instability lead to a underdevelopment of the financial market in many countries (see, for example, Marichal, 1997, Haber, 1997, Haber & Klein, 1997, and Engerman & Sokoloff, 1997). This fact, we think, has two basic points. Firstly, the political instability creates uncertainty about changes of government politics and discretionary interventions. Besides, such instability does not guarantee the execution of private contracts (Broner, Brunneti & Weder, 1992, p.19).

The political and institutional instability, wherein it is endemic and deeply rooted in the political market, can mitigate contracts and generate an informal and an inefficient financial market (Clague, Keefer, Knack, Olson, 1997, p.67). Even so, when we consider private saving decisions, the main problem is the fact that the inter-temporal preferences can be affected. Supposing the existence of a relatively developed financial market, the saving decision can be seen as an inter-temporal contract that demands the warranty and execution of property rights in the future. The incentive structure that emerges from unstable institutions can definitely affect this choice. For example, the non-respect of property rights can generate uncertainty concerning the rights on future financial stocks. The economic agents can shorten the horizons of time of the decisions and, in the case of saving choices. It should be

considered, for example, the theoretical possibility of the non-existence of altruism between generations in extreme situations.

It could be argued that the influence of the political instability on the private saving is not direct, because there are other factors that act in a decisive way on saving decisions. Even so, the economic agents can prefer more the present than the future, independently of the interest rate level and of another variables.

Saving decisions are, theoretically at least, conditioned by structures of incentives: they can be affected for the lack of enforcement of the property rights. The absence of this basic element, in the traditional models that explain saving decisions, is a natural consequence of the fact that they ignore *a priori* suppositions about the quality of the institutions, which are the fundamentals of the market and the government.

Such supposition can be crucial when we study developing economies. For example, there are evidences about the fact that growth causes increases in savings (Hausmann & Reisen, 1997). This fact could be associated to the hypothesis that some institutional changes are previous conditions to the growth.

Our basic argument is that institutional change should be considered seriously as a previous condition for the increase of the domestic saving (private and public) and this hypothesis represents an attempt of bringing new light to the debate. A brief revision of the recent literature on the theme shows that there is no consideration about the impact of the political instability on consumption/saving decisions (see, for example, Hayashif, 1997). This absence is perfectly comprehensible because many papers and books on the theme refer to developed and relatively stable economies. However, the property rights approach becomes important when we consider many underdeveloped economies. For example, a brief exam of some cases of African economies indicates that it is important the consideration of the role of

the institutions in explanation models dealing with underdeveloped economies (Mbaku, 1997, pp. 91-110).

For the theories of economic growth, which appeared in the fifties, from the development theories, until the Solow's model, the great question was to answer the exist differences among the stocks of capital *per capita*. On the other hand, starting from the pioneer works on growth and development to the theoretical developments of the eighties and nineties, the focus of the studies moved for the role of the human capital and of the endogenous technological progress. Naturally, the accumulation of physical capital and of human capital are important variables explaining economic growth, besides technical progress can be exogenous or endogenous. However, there are evidences, for Latin America, that high rates of capital accumulation have been accompanied for relatively low growth rates. On the other hand, there are also evidences that reveal that investments in human capital *per capita* are not a guarantee to high economic growth.

Recent theoretical developments try to make institutions - or social technologies - and incentive structures endogenous with the objective of showing what Coleman (1990) defines as social capital as an important variable in the explanation of the economic growth. The main efforts to endogenise institutions in the explanation of economic growth are developed by the New Institutional Economics (NEI). NIE is a branch of a boarder research program that could be defined as New Political Economy (NPE). The other branch is Constitutional Economics (CE)². NEI has some representatives as like as D. North, R. Thomas and B. Weingast and CE is represented, for example, by the work of J. Buchanan and G. Brennan. These two research programs could be included in a great research program because they have very similar heuristic concerns in the pursuit of enlarging, and not to refute or to deny the heuristic borders of the neo-classical economics. Both the programs have the same interest: the study of the rules that constraint the functioning of the markets for goods and services, financial markets, and of the political market (or the

² Regarding the two researches programs see, for example, North (1990) and Brennan & Buchanan (1985).

State and the government). There are convergence points between the two research programs. The first is in the study of the Constitution, the institutions, norms and the pay-off systems that emerge from them (from the Law and the Constitution *lato sensu*). Secondly, both of them are concerned with the necessity of a theory of the State to complement the neo-classical analysis (see Garcia & Silva, 1998). The second point in common among EC and to NEI it is the same *weltanschauung*, the same vision concerning rent seeking activities: when they are widespread and excessively disseminated in the economy, they generate inefficient results³.

Institutions, as defined by North (1994), are socially devised constraints on economic agents' action. Institutions could be values, the constitution, the Law, and property rights enforcement infrastructure. Alchian (1965) and Demsetz (1964) founded the property rights analysis tradition in modern economics and they explicitly related economic performance, or economic growth and efficiency, with property rights design. The study of property rights structure depends on the construction of a theory of the state, as it has an important function enforcing property rights. One could say that considerations about culture, values and ideologies (or simply, shared mental models) are also essential to a comprehensive understanding of this subject (see North 1995). Hence, the study of the institutions and the state and their relationships with economic efficiency and performance are a main concern of NEI.

The core of the economic science could be defined as the study of the price process departing from economic agents' behaviour. As Clague (1997) note, the basic assumptions of economic theory are exogenous preferences and perfect information, which are the fundamental *a priori* elements of the utility maximisation process. In the recent decades, theory incorporated imperfect information and cognitive capacity. Since then, economic theory was applied to business economics and organisational theory. Despite the fact that economics probably is the most

³ Despite this fact, there are some differences between them. For more details, see Garcia & Silva (1998).

developed of the social sciences, habits, trust and even values are important variables, which are neglected by traditional economic theory.

Despite this fact, as Clague (1997, p. 15) observes, in the recent decades the traditional subject of economics was expanded. One of the most important evolutions is related with the tentative to endogenise preferences in economic models, and to work with co-operation and collective action or to develop a theory of moral sentiments (see Clague, 1997, p. 16). NIE is a research programme concerned about these and other challenges and for the propose of this paper it represents a landmark. We definitely sustain that the quality of the institutions are related with economic performance and property rights must be considered in a savings decision model, specially if the subject has a normative concern with economic growth in developing economies.

However, going strait to the point, what NPE and NIE have to say about savings, economic performance and growth? North (1993, p. 61) establishes the importance of the institutional dimension of economic decisions and growth and recognises that the pay-off system is a determinant variable to explain economic growth disparities. The institutional framework determines the pay-offs system and probably, some countries are poor because the pay-offs do not reward productive activity. This is exactly the case when property rights are not properly enforced.

For this reason, we insist that institutions matter. The institutions of a society represent the rules of the game in the market of goods, services, financial services and in the political market. The institutions are the group of rules that restrict the choices of the economic agents in all of these markets. They generate a pay-offs structure (or simply, incentives) that determines the decisions and the results of the individual actions. North & Thomas (1973) and North & Weingast, (1989) argue that institutions have a fundamental role to explain (i) the development of the financial markets (and private saving incentives), (ii) the capital accumulation and (iii) the technological progress among economies. Hence, economic growth must be

seen as an institutional phenomenon (see Scully, 1988, Scully, 1992, and Murphy, Shleifer & Vishy, 1991).

North (1990,1992) sustains that economic phenomena are founded in decisions of agents restrained by incentives that emerge from a set of institutional arrangements⁴. The institutions could minimise the uncertainties and they could define the pattern of socially desirable behaviour. One of the main functions of the rules of the game would be the enforcement of the property rights, creating the parameters for the establishment and execution of contracts, guaranteeing the return of the investments legally. There is a fundamental example about the relationships between private savings and institutions. This example will have a central role for our main argument that will be presented below. We can find in North & Weingast (1989) an analytical and historical exposition that illustrates the role of institutions in the explanation about economic growth and development. In this paper they argue and show that the constitutional innovations, which appeared in England after the Glorious Revolution, enforced the property rights on assets and constrained the State's discretionary power to expropriate. The consolidation of the Fiscal State in England had contributed to the emerging of a trustful institutional stability, and the institutional reforms allowed the flourishing of the economy.

This is why institutions could be seen as social technologies. They can (or cannot) improve the economic performance, i.e., growth and efficiency. Economic growth and efficiency depend on institutions and institutional stability. Nevertheless, a determined institutional set could be more inefficient than others could. This is the problem that arises when in the economy emerges an incentive structure that determines the allocation of talents and resources mainly in unproductive activities. These incentives could be a product of stable institutions. Hence, the problem here is associated with the quality of the institutions. In this sense, growth, convergence and path dependence are phenomena linked with institutional change (see Scully, 1992, pp.56-105) and Silva (1998).

⁴ See also North, 1992, p.13.

On the other hand, institutions are not just the Constitution and the Law, but the State itself. In a Hobbesian natural state there is an important characteristic; there is no enforcement of property rights. As property rights are essential for growth, its enforcement must be a constitutive function of the State. Opposite to neo-classical economics in general, NEI'S vision and models include the State because property rights are essential.

The NPE theories of the State consider the fact that the State and the policy maker are not political eunuchs. The political market is a place wherein many competitive rent seeking groups act (see, for example, Buchanan & Tullock, 1962, Tullock, 1997, Buchanan, 1975, Becker, 1983, and Olson, 1965). Hence the economics of a rent seeking society must deal with a rent seeking State. North & Weingast (1989) and North & Thomas (1973) consider that the quality of the institutions that govern the public choice and, therefore, the State are essential for the development of the financial markets and for economic growth. We can conclude that economic growth depends on institutions, property right, and incentives. In the explanation of absolute convergence we must consider the fact that without market friendly institutions and institutional stability, economic agents could have not incentives to engage in productive activities. Nevertheless, without property rights enforcement there is no incentive to save. Respect this, Clague, Keefer, Knack & Olson (1997, p.83) note that property rights are related with the development of financial markets:

“Financial development is closed related to property rights and contract enforcement. A country cannot develop a sophisticated financial system if these basic institutions are absent.”

NPE supplies tools to deal with questions concerning growth and development. The property rights paradigm and the consideration of the State as a *locus* of rent seeking activities are important contributions from NPE in general for not just growth theories, but also for development theories (see, for example, Silva, 1998,

North, 1990, Basu, 1997, pp. 319-29, Lal & Myint, 1996, pp.10-6, Hayami, 1997, pp. 21-8, Kasper, 1994, and Borner, Brunetti & Weder, 1995).

Despite the fact that technological progress is the fundamental key for economic growth, financial markets development and savings are decisive variables to explain capital inflows, investment and growth. This point is fundamental for the subject proposed in this paper and therefore to our main hypothesis, the relationship between saving and institutional stability. We must apply, it will be argued, the NIE vision and the property rights approach to a profound understanding about cross-countries differences on savings and growth. As Ranseyer (1997, p.11) note, savings decisions depends on the returns they expect, which could be protected by well defined and enforced property rights. Unfortunately, mainstream studies about savings neglect the role of the political-institutional instability over the savings decisions⁵.

The majority of studies about saving are micro founded and empirical. However, the recent literature about saving is not concerned about the role of institutional stability⁶. An exception is Edwards (1997). As mentioned above, this research evolves a panel study crossing several developed and undeveloped economies. The article shows that the average saving rate in Latin America was, in the decade of 80 (in fact between 1983 and 1993) just 15%, and in spite of the existence of chronic public deficit in some economies, there was also in this period a considerable decreasing in the private saving. Institutional-political instability appears as important variable to explain low saving rates. Considering public saving, the empirical research finds that weak governments tend to save less. This argument represents a starting point to our main argument in this paper. We sustain that, as like as public saving, private savings can be negatively affected by institutional instability. Political and institutional instability can increase the State's

⁵ A survey about the theme, as like as Kortlikoff (1989), represents a good example about this lack in the literature.

⁶ See, for example, Hayashi (1997), Gavin, Hausman & Talvi (1997a, 1997b), Berethèlemy & Varoudakis (1997), Rojas-Suárez & Weisbrod (1997), Birdsall, Pinckney & Sabot (1997), Gavin & Perotti (1997), Normann & Owens (1997), Reisen (1997a, 1997b), Edwards (1997).

discretionary power: in such a situation there is a greater risk of property rights violation.

It would be reasonable to suppose the fact that the own actions of governments constituted under unstable political markets can affect (i) the stability of the basic institutional rules, (ii) the agents' credibility concerning the property rights warranty and the enforcement of the contracts, and (iii) private choices involving savings decisions.

It is important to note that this lack in the literature about private savings is, at least in part, justifiable because the difficulties involving dealing with qualitative index of political and institutional instability. It is very hard task to use data concerning political and institutional instability. Despite this fact, there is the possibility, as we are going to see, to construct models to open the field to new empirical research.

As we affirmed, institutional and political instability can be defined as the volatility of the rules of the economic game and of the basic institutional set (and constitutional set) that regulates the discretionary powers of the State. The institutional instability creates uncertainty about property rights enforcement and in radical cases it increases the risk of expropriation. Institutional instability is the situation wherein there is no guarantee of the respect of private property rights over assets in general. However, there is a kind of institutional instability that it is not so extreme. Macroeconomic instability generates, in many cases (as, for example, Brazil during the Eighties), constant policy changes and increases the possibility of random changes in the economic policy, changes that could affect contracts.

It must be considered the necessity of construct a model linking incentives, which came form the basic institutional set, with save decisions. However, such approach is not compatible with the traditional, neo-classical view about economic agent's decisions (see Silva 1998). Hence, let's see some elements of a new approach to this question.

III. INSTITUTIONS AND SAVINGS: A NEW THEORETICAL APPROACH

There is a relationship between Allais' Paradox and savings behaviour. The economic vision about the determination of private savings is fundamentally founded in the idea that economic agents take decisions to save considering consumption in future. In this sense, saving is a kind of hedge on the future, when the income of productive factor is uncertain or non-existent. Generally, saving choices seek the maximisation of the expected utility, derived from inter-temporal preferences and from expectations, restricted to the present budgetary possibilities.

Nevertheless, saving theories based on decision models with uncertainty have severe limitations. The most famous of them is the case of Allesian preferences. In this situation the transitivity principle or the independence hypothesis are contradicted. In cases like these, the system of axioms of the theory of the expected utility is false. Let's see, with a little more of detail, the famous Allais' problem (1953), which can be synthesised in the following problem.

There are two situations (A and B), which involve choices between lotteries. In the problem A, the economic agent should choose between two lotteries (L1 and L2). The first pays a prize of \$200 with probability of 1, and the other a prize of \$300 with probability of 0,8 and \$0 with probability of 0,2. In the situation B, there are two other lotteries (L3 and L4): L3 pay a prize of \$200 with probability of 0,5 and \$0 with probability of 0,5; Lottery L4 pays \$300 with probability of 0,4 and \$0 with probability of 0,6.

Allais' paradox appears in the case of L1 to be preferred to L2, in the situation A, and L4 to be preferred to L3 in the situation B. However, if L1 is preferred to L2, for the same principle, we should hope L3 went at least as good as L4, otherwise or the transitivity axiom or the independence axiom are not respected. This example reveals us that, in the first situation, economic agents prefer the option of a smaller

risk (L1), independently of the fact of its expected value be smaller than to option L2, while, on the second, the riskiest option L4 is preferred to the situation with smaller risk (L3), because it is larger than its expected value.

If those lotteries are saving plans, which function is to supply the necessary funds to the future consumption, we would say that in situation A the economic agent prefers assets with smaller profitability and with right return and, in the other, the economic agent could choose the risky asset to obtain a little more of financial profitability (situation B). In that case, the change rate between the financial assets is not well defined. In the situation A, the economic agent gives up an additional profitability of \$20 in change of a smaller risk and. In the situation B, he changes the smaller risk for a little more of profitability (the same amount that he opened hand in the previous situation).

That example is quite illustrative for the discussion savings decisions in different economies. Supposing the same structure of the economic agents' preferences and admitting that real assets have nil gains and financial assets are risky, we can say that, in a country in that there is great disparity among the risks of the different assets, the economic agents end up revealing its preference for real assets, even if its profitability is smaller than the financial assets. Nonetheless, in this case the risk differences are small (L3 for L4), the agents end up preferring the most profitable option.

Summing up, the Allais' paradox reveals that the economic agents' behaviour towards risk can be menu-dependent, in the sense that differences among many opportunity sets can generate different choices, independently of the economic agents' preferences. Now, we will present a basic choice model considering that decisions between assets are guided by a group of irreducible choice criteria and we will analyse some problems about determination of the private saving, which are highlighted by the model.

There are two implications in a model that apply to the analysis of the private savings decision the possibility of Allesian preferences and of menu-dependent choices. Following the argument of Moldau (1993) and Silva (1998) and Garcia & Silva (1998), firstly we are going to discuss in which situation a pattern of preferences as like as Maurice Allais's example is possible, given the axioms of Moldau (1993). Moldau (1993 p.375) argues:

“Consider that at the expected value and standard deviation combination that corresponds to lottery 1 the expected value criterion is of first rank. Suppose that at lottery 2's combination of these parameters the standard deviation criterion is of first order. Assume that the importance of the expected value criterion at lottery 1 is smaller than the importance of the standard deviation criterion at lottery 2. It then follows that lottery 1 is preferred to lottery 2. Assume also that at the expected value and standard deviation combinations that correspond to lotteries 3 and 4, the expected value is the predominant criterion. Since its importance is smaller at lottery 4 than at lottery 3, it follows that lottery 4 is chosen over lottery 3.”

For the example suggested by Moldau (1993), we can conclude that, in fact, Allesian preferences are possible in the scope of the theory of Irreducible Values (see Garcia & Silva, 1996, 1998). Another feature is the possibility of menu-dependence behaviour, which can be defined as the occurrence of internal inconsistency when there is some change on agent's opportunity set. If preference is menu-dependent, changes on menu imply preference reversals (Sen, 1994).

According Garcia (1994) and Garcia & Silva (1996), Irreducible Values' hypothesis does not exclude the possibility of menu-dependence behaviour. If we pay attention on the mathematical structure of the function that determines overall preferences, we can see that it is quite the same of that proposed by Arrow (1963) to social decision functions (also called aggregation devices). First, consider that each criterion is an individual in an Arrowian system. Therefore, the overall preference would be a kind of social preference determined by individual values. Since Weak

Paretian Unanimity is satisfied in such a model, it is sufficient to suppose that Irreducible Values satisfies the axiom of non-dominance to prove that Irreducible values is menu-dependent.

Therefore, changes on opportunity set could lead to changes on preferences related to options. It means that the same economy can have different preference orderings in two situations, despite the fact of the existence of the same criteria.

So, we are going to discuss the importance of this result for private savings decision. Let's consider the same lottery assets example exposed in section 2. We suppose that, in the first economy, \$200 is the prize of real assets that costs \$200 to the investor. In that case, the rate of return is zero, but there is no risk related with the reservation of value of the assets 1. Imagine that \$300 are the prize of a financial assets that costs the same \$200 to the investor. As the expected value is \$240, we say that the assets 2 pay interests of 20%. We will consider that, in the second economy, the assets 3 and 4 (see previous example) are offered. Let's suppose in that economy the real assets suffer possible devaluation due to adverse conditions of demand. Let's imagine that the real asset 3 that costs \$100 have a prize of \$200 (in this case there is a valuation as $p = 0,5$), and of \$0 (in this case there is a devaluation as $q = 1 - p$). As the expected value is \$100, we say that the real assets of that economy has null return and a risk ($s = 100$). Imagine that the financial assets 4 costs \$100, but it has a prize of \$300, with probability of 0,4, and of \$0 with probability of 0,6. As the expected value is \$120, we say that the financial asset of that economy has a return of 20% and a risk ($s = 146,97$) superior to the real assets'. Supposing the structure of preferences suggested by Moldau (1993), we see in the first economy that investors will prefer real assets, while in the second economy they will acquire financial assets, considering the fact that the financial return of the assets 2 and 4 are the same ones. We say that, in the economy 2, the assets 4 was chosen because the risk difference for the assets 3 is smaller than the risk difference between the assets 1 and 2 of the first economy.

Let's see other interesting example of assets with equal cost (\$100), but different returns and risks. Someone offers a prize of \$110 with probability of 90% and of \$90 with probability of 10%. The second, \$10.800 premium with probability of 1%, and \$0,00 with probability of 99%. The last, a premium of \$108, with null risk. The expected values of the first two situations are \$108,00, but in the first case, the variance of the prizes is very smaller. The agent averse to risk will prefer the first lottery. For the same reason, the economic agents could prefer the real assets, with no risk and return, to the assets 2, because it has high variability of the returns, in spite of paying a larger expected interest rate. Finally, we can suppose that the savers will prefer the financial assets 1 to real assets, if the additional return of 8% compensates the additional risk.

Therefore, if an economy offers low risk financial assets, but another one is unable to do it, the first would have a larger saving than the second, despite the existence of assets that pay the same 8% interest rate. That is to say, economies that do not offer financial assets with low risk are unable to "capture" private saving. In that case, economies with high institutional instabilities – associated with high inflation, political instability, lack of guarantee of property rights, etc. – could have smaller private savings rates comparing with another ones, wherein institutional stability is the rule, not the exception, and the agents notice the viability of assets with low profitability and low risk (as in the case of pension funds).

For example, there is a lot of panacea about the impact of pension funds on private and public saving. Firstly, a pension fund reform does not guarantee a priori the increase of the private saving, because it could represent just a portfolio reallocation. Secondly, in the long run there is the possibility of saving increases, because the reductions on the public deficit (or increase in the public surplus) in the end of the transition period and due to new saving decisions - not simple reallocations of financial savings - by the private agents. Even in this case, it must be considered the role of institutions and institutional stability over private decisions involving retirement programmes. For example, Diamond (1997) suggests

the necessity of insulating pension funds from political risks as a way to improve pension contracts.

IV. PROPERTY RIGHTS AND SAVINGS: THE EMPIRICAL EVIDENCE

In this section we will discuss some empirical evidences used to test our main hypothesis, which states that political and institutional stability are savings friendly. In other words, high political and institutional instability causes low saving rates, especially low private saving rates.

As a proxy of the political and institutional stability we used the PROP index, or the level of satisfaction of property rights, an index published by The Freedom House. The use of another indexes as like as POLCRED (Broner, Brunetti, Weder, 1995) and INSTALL Aesina, Ozler, Roubini & Swagel (1996) was very difficult, as we found many econometric problems applying them to our problem. The most common problem is multicollinearity.

Property rights enforcement could be a proxy for political and institutional stability and, as we are going to see, PROP has significance when applied to a savings determination model.

A very usual problem arises when we use social indicators in economic growth models. As Fedderke & Klitgaard (1998) note, there is a high risk of correlation between social indicators (“good things moving together” or “bad things moving together”). Multivariate analysis shows simultaneity between growth and rights (Fedderke & Klitgaard, 1998, p. 480).

By the way, the real problem in using social indicators is the fact that the data is badly behaved and the number of observations, in general, reduced. So, the

execution of panel data analysis is extremely difficult. Hence, we opted to use a cross-section.

We used a sample composed by 65 countries evolving developing and developed economies and the independent variables were DEP (dependence age rate), INF (inflation), IRATE (interest rate) and PROP (degree of satisfaction of property rights).

We performed 12 econometric tests, using six models in two different experiments. The first one was the relation between *per capita* savings and the independent variables, including PROP. The second one was the relation between *per capita* product and the same variables.

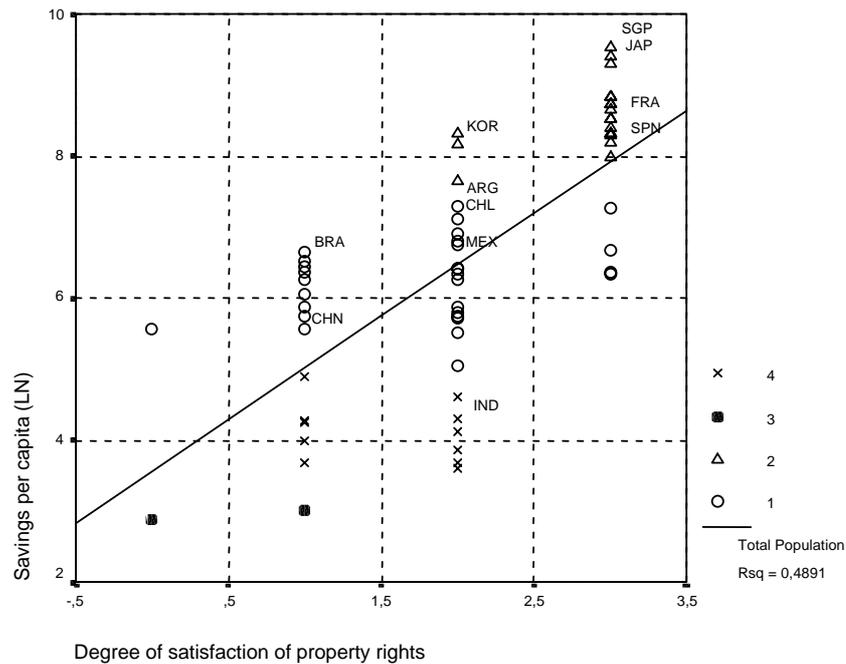
As discussed above, political and institutional instability (and property rights enforcement) does not act on economic growth, due the fact that it affects investments and the allocation of talents in society, as recognised by Murphy, Shleifer & Vishny (1991). In fact, savings are affected by institutional instability, in our experiment, represented by the non-guarantee of the property rights.

These results, we suppose, could be very important in the normative evaluation on the causes of low savings rates among different economies. For this reason, the empirical research agenda must consider this open field as a new investigation programme.

The empirical results are summed up below:

Figure 1

Sensitivity Data Analysis

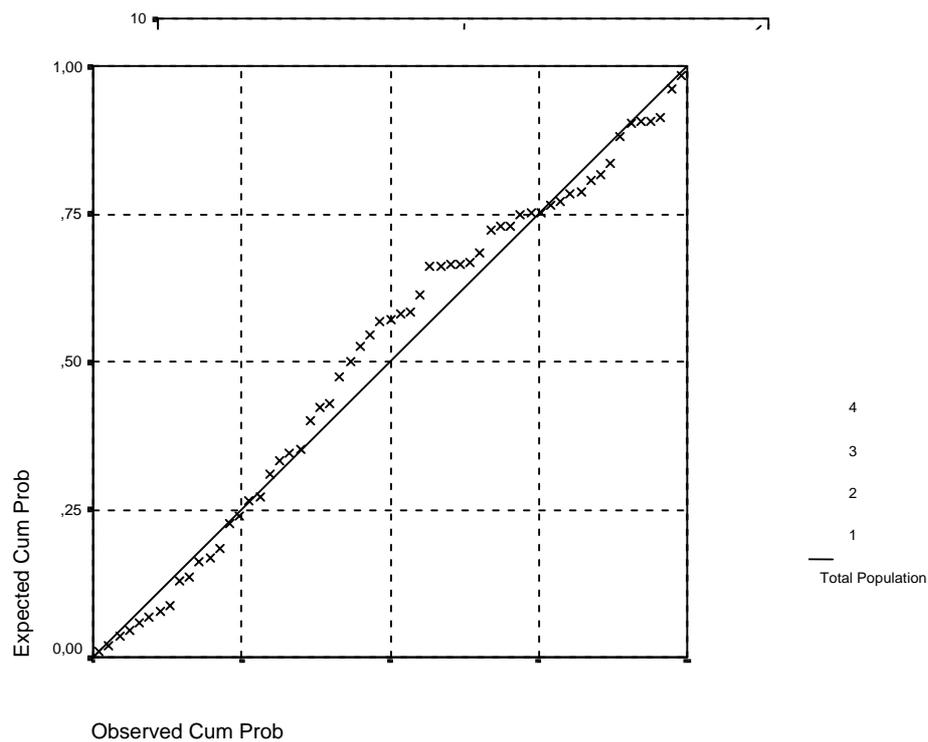


The regression analysis evolved six regression models used to explain *per capita* savings. The last model is the most robust and it presents no colinearity. As we can see, property rights satisfaction adjusted to dependency rate explains savings. This regression strongly supports the supposition that property rights are related with savings. The coefficient has the expected sign and it is significant.

Table 1
Six Regressions of Property Rights: Dependent
Variable = Savings

Model	R ²	F*	D.W.	Col.**	α	β_1	β_2	n
$sf(k) = a.e^{\beta_1.d}$	57,6	77,295	1,550	-	11,623 (19,550)	-8,369 (8,790)	-	58
$sf(k) = a.e^{\beta_1.d.r^{\beta_2}}$	66,5	42,621	1,726	no	11,589 (18,270)	-8,329 (7,953)	0,750 (3,686)	45
$sf(k) = a.e^{\beta_1.d.r^{-\beta_2}}$	67,4	44,370	1,735	yes	11,485 (18,243)	-8,312 (8,045)	0,358 (3,889)	45
$sf(k) = a.e^{(\beta_1.d + \beta_2.p)}$	74,2	80,590	1,828	yes	8,279 (11,397)	-6,290 (7,629)	1,001 (6,015)	58
$sf(k) = a.e^{\beta_1 \frac{p}{d}}$	74,2	163,970	1,833	-	5,578 (40,623)	-1,023 (12,805)	-	58

Figure 2
Original Data and Estimations



The other six regressions refer to the relation between property rights and the growth of *per capita* product. The last model is the best. There is significance, there is no colinearity, but DW is inconclusive.

Table 2

Six Regressions of the *per capita* Product

Model	R ²	F*	D.W.	Col.**	α	β_1	β_2	n
$sf(k) = a.e^{\beta_1.d}$	49,9	32,882	1,601	-	12,471 (21,608)	-7,255 (6,496)	-	68
$sf(k) = a.e^{\beta_1.d.r\beta_2}$	67,3	31,556	1,609	no	12,274 (20,116)	-6,622 (5,422)	0,795 (4,503)	49
$sf(k) = a.e^{\beta_1.d.r^{-\beta_2}}$	68,2	32,934	1,610	discrete	12,253 (20,381)	-6,899 (5,818)	0,366 (4,714)	49
$sf(k) = a.e^{(\beta_1.d+\beta_2.p)}$	70,3	51,270	1,716	yes	8,814 (12,460)	-4,579 (4,795)	0,994 (6,678)	68
$sf(k) = a.e^{\beta_1.\frac{p}{d}}$	69,9	76,661	1,681	-	7,226 (31,497)	-0,880 (10,681)	-	68

The data analysis reveals some problems associated with the use of social indicators as pointed out by Fedderke & Klitgaard (1998). Despite this, we obtained some useful results from which we could derive some basic conclusions about the relationship between institutional and political instability and savings. We must consider that there are many variables acting upon savings decisions. However, this empirical study reveals that, in some way, property rights enforcement, as a proxy of institutional and political stability, explains, at least in part, *per capita* savings rates differences as like as *per capita* product differences in a cross country analysis.

V. CONCLUDING REMARKS

In this article, we proceeded econometric tests that do not reject our main hypotheses. Private saving decisions are related with institutional instability, and more precisely, with property rights enforcement. Mainstream researches on saving do not pay attention to this fact, as institutions are modelled as exogenous variables. Hence, it is supposed in general that property right is enforced. In fact, saving increasing is essential to growth.

Our economic and econometric analysis of institutions strengthens interpretations of institutions as the basis of incentive structures. We found that enforced and credible property rights could be important variables in the explanation of savings determination. This fact indicates that savings respond to changes in what people expect from the institutions, which could represent the future guarantee on property rights over future consumption.

There are many challenges and obstacles to economic growth in Latin America and in other parts of the world economy. Latin American economies are facing problems associated with low saving rates and probably, we argue, constitutional and institutional reforms, including the creation of fiscal discipline, are key variables to solve this problem. Strong financial and capital markets, as well as the existence of pension funds, could be a fundamental element to improve savings and the allocative efficiency of them. However, all of this does not make sense without institutional guarantees on property rights.

Silva (1998) and Edwards (1997) supply theoretical and some empirical evidence about this fact. However, in this paper we argue that property rights enforcement is also an important variable in the explanation of cross-country differences on savings. Political and institutional instability represents obstacles to growth.

Our study opens new avenues for related empirical and theoretical research. It would be appropriate to apply theoretical and empirical approaches presented here to comparisons among economies, including further research about the role of values and social capital on saving behaviour and economic growth.

VI. BIBLIOGRAPHY

- ALESINA, A. & PEROTTI, R. "The Politics of Growth". in BERGSTROM, V. (ed.). *Government and Growth*. Oxford, Clarendon Press Oxford, 1997.
- ALESINA, A., ROUBINI, N. & COHEN, G.D. *Political Cycles and the Macroeconomy*. Cambridge, MIT Press, 1997.
- ALESINA, A., OZLER, S, ROUBINI, N. & SWAGEL, P. *Political Instability and Economic Growth*. "Journal of Economic Growth", 1 (2), June, 1996.
- ALLAIS, M. *Le comportement de l'homme rationnelle devant le risque, critique des postulats et axiomes de l'école Americaine*. "Econometrica" 21, 1953.
- ALSTON, L., EGGERTSSON, T. & NORTH, D.C. *Empirical Studies in Institutional Change*. Cambridge, Cambridge University Press, 1996.
- ANDERSEN, T. M. & MOENE, K. O. (eds.). *Endogenous Growth*. Oxford, Basil Blackwell, 1993.
- AOKI, M., KIM, H-K & OKUNO-FUJIWARA, M. *The Role of Government in East Asian Economic Development: Comparative Institutional Analysis*. Oxford, Clarendon Press Oxford, 1997.

- AUERBACH, A.J. *Fiscal Policy: Lessons From Economic Research*. Cambridge, MIT Press, 1997.
- BANCO MUNDIAL. *Relatório Sobre o Desenvolvimento Mundial*. Oxford, Oxford University Press, 1996.
- BARNETT, W. A., HINICH, M. J. & SCHOFIELD, N. J. (eds.). *Political Economy: Institutions, Competition and Representation*. Cambridge, Cambridge University Press, 1993.
- BARRO, R. J. “Democracy: A Recipe for Growth?”. in QUIBRIA, M. G. & DOWLING, J. M. (eds.). *Current Issues in Economic Development: An Asian Perspective*. Hong Kong, Oxford, New York, Oxford University Press, 1996.
- BARRO, R. J. *Determinants of Economic Growth: A Cross-Country Empirical Study*. Cambridge, MIT Press, 1997.
- BARRO, R. *Economic Growth and Convergence*. San Francisco, International Centre for Economic Growth, 1994.
- BARRO, R. *Economic Growth in a Cross-Section of Countries*. “Quarterly Journal of Economics”. Vol. 106, august, 1991.
- BARRO, R. & SALA-I-MARTIN, X. *Economic Growth*. New York, MacGraw-Hill, 1995.
- BASU, K. *Analytical Development Economics*. Cambridge, MIT Press, 1997.
- BAUMOL, W. J. *Entrepreneurship, Management and the Structure of Pay-offs*. Cambridge, MIT Press, 1993.

- BENHABIB, J. & JOVANOVIĆ, B. *Externalities and Growth Accounting*. "American Economic Review". Vol. 81, n. 1, 1991.
- BERGSTROM, V. (ed.). *Government and Growth*. Oxford, Clarendon Press Oxford, 1997.
- BERNHEIN, D. & SHOVEN, J. (eds.). "National Saving and Economic Performance". Chicago, NBER/Chicago University Press, 1991.
- BERTHÉLEMY, J-C & VAROUDAKIS, A. "Financial Development, Savings and Growth Convergence: A Panel Data Approach". in HAUSMANN, R. & REISEN, H.. *Promoting Savings in Latin America*. Paris, OECD/Inter-American Development Bank, 1997.
- BETHELL, L. (ed.). *The Cambridge History of Latin America*. Cambridge, Cambridge University Press, 1994.
- BIRDSALL, N. & JASPERSEN, F. (ed.). *Pathways to growth: Comparing East Asia and Latin America*. Washington, Inter-American Development Bank, 1997.
- BIRDSALL, N., PINCKNEY, T. C. & SABOT, R. H. "Why Low Inequality Spurs Growth: Savings and Investment by the Poor". in HAUSMANN, R. & REISEN, H.. *Promoting Savings in Latin America*. Paris, OECD/Inter-American Development Bank, 1997.
- BORNER, S., BRUNETTI, A. & WEDER, B. *Institutional Obstacles to Latin American Growth*. San Francisco, International Center for Economic Growth, 1992.
- BORNER, S., BRUNETTI, A. & WEDER, B. *Political Credibility and Economic Development*. London, St. Martin's Press, 1995.

- BOSKIN, M. *Taxation, Savings and the Rate of Interest*. "Journal of Political Economy". Vol. 86, 1978.
- BRETON, A., GALEOTTI, G., SALMON, P. & WINTROBE, R. (eds.). *Understanding Democracy: Economic and Political Perspectives*. Cambridge, Cambridge University Press, 1997.
- BULMER-THOMAS, V. *The Economic History of Latin America Since Independence*. Cambridge, Cambridge University Press, 1994.
- CABALLERO, R. *Consumption Puzzles and Precautionary Savings*. "Journal of Monetary Economics". Vol. 25, 1990.
- CAO, K. (ed.). *The Changing Capital Markets of East Asia*. London, Routledge, 1995.
- CARROLL, C. D. & WEIL, D. N. *Savings and Growth: A Reinterpretation*. NBER Working Paper. N. 4470, September, 1993.
- CHEIBUB, J. A. & PRZEWORSKI, A. "Government Spending and Economic Growth under Democracy and Dictatorship". in BRETON, A., GALEOTTI, SALMON, P. & WINTROBE, R. *Understanding Democracy: Economic and Political Perspectives*. Cambridge, Cambridge University Press, 1997.
- CORSETTI, G. & SCHMIDT-HEBBEL, K. "Pension Reform and Growth", in VALDES-PRIETO, S. (ed.). *The Economics of Pensions: Principles, Policies, and International Experience*. Cambridge, Cambridge University Press, 1997.
- CUKIERMAN, A., HERCOVITZ, Z. & LIEDRMAN, L. (eds.). *Political Economy, Growth, and Business Cycles*. Cambridge, MIT Press, 1992.

- CUKIERMAN, A., EDWARDS, S. & TABELLINI, G. *Seigniorage, Political Instability and Inflation*. "American Economic Review". Vol 72, June, 1992.
- DEATON, A. *Savings in Developing Countries: Theory and Review*. "World Bank Economic Review". n. 2, 1992.
- DEATON, A. *Growth and Savings: What Do We Know and What Might We Learn*. Working Paper, Princeton University, 1995.
- DENISON, E. *Trends in American Economic Growth*. Washington, The Brookings Institution, 1985.
- DIAMOND, P. "Insulation of Pensions from Political Risk" in VALDES-PRIETO, S.(ed.). *The Economics of Pensions: Principles, Policies, and International Experience*. Cambridge, Cambridge University Press, 1997.
- DORNBUSH, R. LABÁN, R. (eds.). *The Chilean Economy: Policy Lessons and Challenges*. Washington, The Brookings Institution, 1991.
- DORNBUSH, R. & EDWARDS, S. (eds.). *Stabilization, Economic Reform and Growth*. Chicago, Chicago University Press, 1994.
- DOSHI, K. *The Determinants of the Saving Rate: An International Comparison*. "Contemporary Economic Policy". Vol . 12, January, 1994.
- EDWARDS, S. *Crisis and Reform in Latin America*. Cambridge, Cambridge University Press, 1994.
- EDWARDS, S. *Financial Deregulation and Segmented Capital Markets.: The case of Korea*. "World Development". Vol. 16, January, 1988.

- EDWARDS, S. *Latin America and the Caribbean a Decade After the Debt Crisis*. Washington, The World Bank, 1993.
- EDWARDS, S & TABELLINI, G. *Political Instability, Political Weakness and Inflation: An Empirical Analysis*. in SIMS, C. (ed.), *Advances in Econometrics*. Cambridge, Cambridge University Press, 1994.
- EDWARDS, S. “Why are Latin America’s Saving Rates So Low”. in BIRDSALL, N. & JASPERSEN, F. (ed.). *Pathways to growth: Comparing East Asia and Latin America*. Washington, Inter-American Development Bank, 1997.
- ENGERMAN, S. L. & SOKOLOFF, K. L. “Factor Endowments, Institutions, and Differential Paths of Growth Among New World Economies: A View from Economic Historians of the United States”, in HABER, S. (ed.). *How Latin America Fell Behind*. Stanford, Stanford University Press, 1997.
- FEDDERKE, J. & KLITGAART, R. *Economic Growth and Social Indicators*. “Economic Development and Cultural Change”, April, 1998.
- FINANCIAL TIMES. *Brazil Survey*. December, 2, 1997.
- GALVIN, M., HAUSMANN, R. & TALVI, E. “Saving, Growth and Macroeconomic Vulnerability”. in BIRDSALL, N. & JASPERSEN, F. (ed.). *Pathways to growth: Comparing East Asia and Latin America*. Washington, Inter-American Development Bank, 1997a, 1997.
- GALVIN, M., HAUSMANN, R. & TALVI, E. “Saving Behaviour in Latin America: Overview and Policy Issues”. in HAUSMANN, R. & REISEN, H.. *Promoting Savings in Latin America*. Paris, OECD/Inter-American Development Bank, 1997b, 1997.

- GAVIN, M. & PEROTTI, R. "Fiscal Policy and Private Saving in Latin America in Good Times and Bad". in HAUSMANN, R. & REISEN, H. *Promoting Savings in Latin America*. Paris, OECD/Inter-American Development Bank, 1997.
- GARCIA, F. *Os Fundamentos da Premissa de Racionalidade Econômica, suas Limitações e a Abordagem Paraconsistente*. Ph.D. Thesis, Instituto de Pesquisa Econômica da Universidade de São Paulo, São Paulo, SP, 1994.
- GARCIA, F. & SILVA, M.F.G. *Social Choice and Irreducible Values*. Latin American Meeting of the Econometric Society, IMPA, Rio de Janeiro, August, 1996.
- HABER, S. (ed.). *How Latin America Fell Behind*. Stanford, Stanford University Press, 1997.
- HARBER, S. "Introduction: Economic Growth and Latin American Economic Historiography". in *How Latin America Fell Behind: Essays on the Economic Histories of Brazil and Mexico, 1800-1914*. Stanford, Stanford University Press, 1997a, 1997.
- HARBER, S. "Financial Markets and Industrial Development: A Comparative Study of Governmental Regulation, Financial Innovation, and Industrial Structure in Brazil and Mexico, 1840-1930". in *How Latin America Fell Behind: Essays on the Economic Histories of Brazil and Mexico, 1800-1914*. Stanford, Stanford University Press, 1997b, 1997.
- HARRISS, J., HUNTER, J. & LEWIS, C. M. (eds.). *The New Institutional Economics and Third World Development*. London, Routledge, 1995.
- HAUSMANN, R. & REISEN, H. *Promoting Savings in Latin America*. Paris, OECD/Inter-American Development Bank, 1997.

- HAYAMI, Y. *Development Economics: From the Poverty to the Wealth of Nations*. Oxford, Oxford University Press, 1997.
- HAYASHI, F. *Understanding Saving: Evidence from the United States and Japan*. Cambridge, MIT Press, 1997.
- HOCH, S. J. & LOWENSTEIN, G. F. "Time-Inconsistent Preferences and Consumer Self-Control". *Journal of Consumer Research*, 17, n. 4, 1991.
- KAPUR, B. K. "Ethics, Values, and Economic Development". in QUIBRIA, M. G. & DOWLING, J. M. (eds.). *Current Issues in Economic Development: An Asian Perspective*. Hong Kong, Oxford, New York, Oxford University Press, 1997.
- KOTLIKOFF, L. J. *What Determines Savings*. Cambridge, MIT Press, 1989.
- LAL, D. & MYINT, H. *The Political Economy of Poverty, Equity and Growth*. Oxford, Clarendon Press Oxford, 1996.
- LANDAU, R., TAYLOR, T. & WRIGHT, G. (eds.). *The Mosaic of Economic Growth*. Stanford, Stanford University Press, 1996.
- LUCAS, R. *On the Mechanics of Economic Development*. "Journal of Monetary Economics". Vol. 22, July, 1988.
- MANKIW, G. *The Growth of Nations*. "Brookings Papers on Economic Activity". September, 1995.
- MANKIW, N.G., ROMER, D. & WEIL, D. N. *A Contribution to the Empirics of Economic Growth*. "Quarterly Journal of Economics". Vol. 107, n. 2, 1992.

- MARICHAL, C. "Obstacles to the Development of Capital Markets in Nineteenth-Century Mexico". in HABER, S. (ed.). *How Latin America Fell Behind*. Stanford, Stanford University Press, 1997.
- MBAKU, J. M. *Institutions and Reform in Africa*. Westport, Praeger, 1997.
- MOLDAU, J.H. *On the Lexical Ordering of Social States According to Rawls' Principles of Justice*. "Economics and Philosophy", vol. 8, 1992.
- MOLDAU, J.H. *A Model of Choice where Choice is Determined by an Ordered Set of Irreducible Criteria*. "Journal of Economic Theory", vol. 60, no. 2, August, 1993.
- MOLDAU, J.H. *A Teoria da Escolha com Objetivos Irredutíveis e suas Implicações*. São Paulo, IPE-USP, 1988.
- MURPHY, K. M., SHLEIFER, A. & VISHNY, R. W. "The Allocation of Talent: Implications for Growth", *Quarterly Journal of Economics*, May, 106, 1991.
- NORMANN, G. & OWENS, J. "Tax Effects on Household Saving: Evidence from OECD Member Countries". in HAUSMANN, R. & REISEN, H. *Promoting Savings in Latin America*. Paris, OECD/Inter-American Development Bank, 1997.
- NORTH, D. C. *Institutions, Institutional Change and Economic Performance*. Cambridge, Cambridge University Press, 1990.
- NORTH, D. C. *Structure and Change in Economic History*. New York, Norton, 1981.

- NORTH, D. C. "Toward a Theory of Institutional Change" in BARNETT, W.A., HINICH, M. J. & SCHOFIELD, N. J. (eds.) *Political Economy: Institutions, Competition, and Representantion (Proceedings of the Seventh Insternational Symposion in Economic Theory and Econometrics/Insternational Symposia in Economic Theory and Econometrics)*. Cambridge, Cambridge University Press, 1993.
- NORTH, D. C. *Transaction Costs, Institutions, and Economic Performance*. San Francisco, International Center for Economic Growth, 1992.
- NORTH, D. C. & WEINGAST, B. W. *The Evolution of Institutions Governing Public Choice in 17th Century England*. "Journal of Economic History". Vol. 49, 1989.
- NORTH, D. C. & THOMAS, R. P. *The Rise of the Western World: A New Economic History*. Cambridge, Cambridge University Press, 1983.
- OBSTFELD, M. *Effects of Foreign Resource Inflows on Savings: A Methodological Overview*. San Diego, University of California Press, 1995.
- OGAKI, M., OSTRY, J. & REINHART, C. *Saving Behavior in Low and Middle Income Developing Countries: A Comparison*. "IMF Working Paper". January, 1995.
- OLSON, M. *Big Bills Left on the Sidewalk: Why Some Nations are Rich, and Others Poor*. "Journal of Economic Perspectives". Vol. 10, n. 2, 1996.
- PARENTE, S. L. & PRESCOTT, E. C. *Changes in the Wealth of the Nations*. "Quarterly Review Federal Reserve Bank of Minneapolis". Spring, 1993.

- PERSSON, T. & TABELLINI. *Macroeconomic Policy, Credibility and Politics*. New York, Harwood Academic, 1990.
- PORTER, P. K. & SCULLY, G. W. *Institutional Technology and Economic Growth*. "Public Choice". Vol. 4, 1995.
- PRZEWORSKI, A. & LIMONGI, F. "Political Regimes and Economic Growth". *Journal of Economic Perspectives*, Summer, n. 7, 1993.
- QUIBRIA, M. G. & DOWLING, J. M. (eds.). *Current Issues in Economic Development: An Asian Perspective*. Hong Kong, Oxford, New York, Oxford University Press.
- RAMSEYER, J. M. *Odd Markets in Japanese History*. Cambridge, Cambridge University Press, 1996.
- REBELO, S. *The Long Run Policy Analysis and Long Run Growth*. "Journal of Political Economy". Vol. 99, June, 1991.
- REISEN, H. "The Limits of Foreign Savings". in HAUSMANN, R. & REISEN, H.. *Promoting Savings in Latin America*. Paris, OECD/Inter-American Development Bank, 1997a, 1997.
- REISEN, H. "Promoting Savings in Latin America: Some Insights". in HAUSMANN, R. & REISEN, H.. *Promoting Savings in Latin America*. Paris, OECD/Inter-American Development Bank, 1997b, 1997.
- ROJAS-SUAREZ, L. & WEISBROD, S. R. "Financial Markets and the Behaviour of Private Savings in Latin America". in HAUSMANN, R. & REISEN, H. *Promoting Savings in Latin America*. Paris, OECD/Inter-American Development Bank, 1997.

- ROMER, D. *Advanced Macroeconomics*. New York, McGraw-Hill, 1996.
- ROMER, P. *Human Capital and Growth: Theory and Evidence*. Carnegie-Rochester Conference Series on Public Policy. N. 32, Spring, 1990a.
- ROMER, P. *Endogenous Technological Change*. "Journal of Political Economy". 98, supplement, October, 1990b.
- ROMER, P. *Increasing Returns and Long-Run Growth*. "Journal of Political Economy". Vol. 94, 1986.
- SALMON, P. "Democratic Governments, Economic Growth, and Income Distribution". in BRETON, A., GALEOTTI, G., SALMON, P. & WINTROBE, R. (eds.). *Understanding Democracy: Economic and Political Perspectives*.
- SCHIMIDT-HEBBEL, K., SEVÉN, L. & SOLIMANO, A. *Savings and Investment: Paradigms, Puzzles, Policies*. "The World Bank Research Observer". Vol. 11, n.1, 1996.
- SCHIMIDT-HEBBEL, K. WEBB, S. & CORSETTI, G. *Household Savings in Developing Countries*. "World Bank Economic Review". Vol. 6, September, 1992.
- SCULLY, G. W. *Constitutional Environments and Economic Growth*. New Jersey, Princeton University Press, 1992.
- SCULLY, G. W. *The Institutional Framework and Economic Development*. "Journal of Political Economy". Vol. . 96, July, 1988.
- SERRÁNO, M. (ed.). *Mexico: Assessing Neo-Liberal Reform*. London, The Institute of Latin American Studies/University of London, 1997.

- SHEFRIN, H. M. & THALER, R. H. "The Behavioral Life-Cycle Hypothesis". *Economic Inquiry*, 26, n. 4, 1988.
- SOBERÓN, F. S. & VILLAGOMEZ, A. "Domestic Savings in Mexico and Pension Reform". in SERRÁNO, M. (ed.). *Mexico: Assessing Neo-Liberal Reform*. London, The Institute of Latin American Studies/University of London, 1997.
- SHLEIFER, A. *Establishing Property Rights*. Discussion Paper 1683. Harvard University, 1994.
- SILVA, M. F. G. *Estabilidade Institucional, Credibilidade e Poupança Privada: Uma Análise de Economia Política*. São Paulo. Relatório de Pesquisa, Núcleo de Pesquisas e Projetos da Fundação Getúlio Vargas-SP, fevereiro, 1998.
- SOLOW, R. *A Contribution to the Theory of Economic Growth*. "Quarterly Journal of Economics". Vol. 70, February, 1956.
- TANZI, V. "Economic Consequences of Corruption". in *The Economics of Organised Crime*. Cambridge, Cambridge University Press, 1995.
- VALDES-PRIETO, S.(ed.). *The Economics of Pensions: Principles, Policies, and International Experience*. Cambridge, Cambridge University Press, 1997.
- WINTROBE, R. "Rent Seeking and Redistribution under Democracy Versus Dictatorship". in BRETON, A., GALEOTTI, G., SALMON, P. & WINTROBE, R. (eds.). *Understanding Democracy: Economic and Political Perspectives*. Cambridge, Cambridge University Press, 1997.
- WORLD BANK. *World Bank Research Observer*. Vol. 11, n.1, February, 1996.

WORLD BANK. *World Development Report*. Oxford University Press, 1993a, 1993.

WORLD BANK. *The East Asian Miracle: Economic Growth and Public Policy*. Oxford, Oxford University Press, 1993b, 1993.

WWW fonts:

<http://econwpa.wustl.edu/EconFAQ/EconFAQ.html>

<http://www.worldbank.org/html/prdmg/grthweb/growth-t.html>

<http://www.ciensin.org/IC/wbank/sid-home.html>

<http://cansim.epas.utoronto.ca:5680/pwt/pwt.html>

<http://www.nuff.ox.ac.uk/Economists/Growth/>

VII. APPENDIX 1: ORIGINAL DATA SET

Country Name	Savings per capita (US\$) ¹	Dependence age rate	Inflation rate (% p.a.)	Interest rate (% p.a.)	Degree of satisfaction of property rights
Argentina	1.475,72	0,60	4,50	11,90	2
Australia	4.149,73	0,50	-0,03	,	3
Austria	6.941,59	0,50	2,16	2,20	3
Azerbaijan	17,62	0,60	609,51	,	0
Bangladesh	20,01	0,90	8,84	6,00	1
Belarus	422,79	0,50	646,51	100,80	1
Belgium	5.819,21	0,50	2,08	4,00	3
Brazil	766,34	0,60	72,53	52,20	1
Bulgaria	329,70	0,50	50,49	,	2
Canada	4.129,69	0,50	2,93	7,10	3
Chile	1.217,23	0,60	12,29	13,70	2

Country Name	Savings per capita (US\$) ¹	Dependence age rate	Inflation rate (% p.a.)	Interest rate (% p.a.)	Degree of satisfaction of property rights
China	260,63	0,50	12,84	11,00	1
Colombia	301,11	0,60	21,13	32,30	2
Costa Rica	614,20	0,70	23,82	23,90	2
Cote d'Ivoire	132,95	1,00	14,07	,	1
Czech Republic	781,95	0,50	9,07	7,00	3
Denmark	6.295,63	0,50	1,46	3,90	3
Egypt, Arab Rep.	47,02	0,70	8,34	10,90	2
El Salvador	99,46	0,80	9,77	14,40	2
Estonia	520,56	0,50	34,45	8,70	2
Finland	5.027,98	0,50	3,07	3,20	3
France	5.005,51	0,50	1,70	4,50	3
Germany	6.235,75	0,50	,	3,90	3
Ghana	39,45	0,90	39,90	28,70	2

Country Name	Savings per capita (US\$) ¹	Dependence age rate	Inflation rate (% p.a.)	Interest rate (% p.a.)	Degree of satisfaction of property rights
Greece	570,21	0,50	9,02	15,80	3
Hungary	847,73	0,50	24,05	26,10	2
India	74,10	0,70	8,01	,	2
Indonesia	350,84	0,60	8,69	,	1
Ireland	4.028,99	0,50	1,24	0,40	3
Israel	2.107,34	0,60	9,57	14,10	2
Italy	4.132,69	0,50	4,74	6,40	2
Japan	12.104,94	0,40	-0,59	0,70	3
Kazakstan	258,14	0,60	161,04	,	0
Kenya	36,17	1,00	8,03	13,60	2
Korea, Rep.	3.500,44	0,40	5,33	8,80	2
Kyrgyz Republic	69,79	0,80	38,52	,	1
Latvia	352,16	0,50	23,86	14,80	2

Country Name	Savings per capita (US\$) ¹	Dependence age rate	Inflation rate (% p.a.)	Interest rate (% p.a.)	Degree of satisfaction of property rights
Lithuania	312,50	0,50	37,20	8,40	2
Malaysia	1.446,51	0,70	5,14	5,90	3
Mexico	614,92	0,70	35,80	39,20	2
Netherlands	6.894,94	0,50	2,06	4,40	3
New Zealand	3.663,56	0,50	-1,74	8,50	3
Nigeria	54,26	0,90	57,38	13,50	1
Pakistan	72,27	0,90	14,28	,	1
Peru	246,38	0,60	9,79	16,00	2
Philippines	154,81	0,70	7,39	8,40	2
Poland	518,77	0,50	27,44	26,80	1
Romania	314,10	0,50	35,47	,	1
Russian Federation	573,84	0,50	190,76	102,00	1
Senegal	62,03	1,00	2,26	,	2

Country Name	Savings per capita (US\$) ¹	Dependence age rate	Inflation rate (% p.a.)	Interest rate (% p.a.)	Degree of satisfaction of property rights
Singapore	13.772,09	0,40	2,58	3,50	3
Slovak Republic	888,59	0,50	8,96	9,00	2
South Africa	575,77	0,70	10,23	13,50	3
Spain	2.948,36	0,50	4,65	7,70	3
Sweden	4.403,09	0,60	3,86	6,20	3
Switzerland	11.020,77	0,50	0,26	1,30	3
Thailand	992,53	0,50	6,46	11,60	2
Turkey	562,74	0,60	82,45	76,10	2
Uruguay	682,30	0,60	41,65	38,20	1
Venezuela	621,26	0,70	50,06	24,70	1
Vietnam	39,14	0,70	19,48	,	1

Adjusted to terms of trade.
Font: World Development Indicators (1998), Freedom House (1998)

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<http://www.ciensin.org/IC/wbank/sid-home.html>

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<http://www.nuff.ox.ac.uk/Economists/Growth/>

VIII. APPENDIX 2: CORRELATION BETWEEN VARIABLES

Correlation	$\ln(sf(k))$	d	$\ln(i)$	$\ln(\pi)$	p
$\ln(sf(k))$	1,000	-,742	-,422	-,466	,699
d	-,742	1,000	,155	,163	-,480
$\ln(i)$	-,422	,155	1,000	,828	-,645
$\ln(\pi)$	-,466	,163	,828	1,000	-,733
p	,699	-,480	-,645	-,733	1,000
$\ln(sf(k))$,	,000	,000	,000	,000
d	,000	,	,101	,048	,000
$\ln(i)$,000	,101	,	,000	,000
$\ln(\pi)$,000	,048	,000	,	,000
p	,000	,000	,000	,000	,
$\ln(sf(k))$	99	99	71	92	61
d	99	194	113	147	80
$\ln(i)$	71	113	114	99	56
$\ln(\pi)$	92	147	99	147	71
p	61	80	56	71	82