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Robin Hood vs. King John Redistribution: How Do Local Judges Decide Cases In Brazil?

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This article discusses two opposed hypotheses to predict the behavior of judges when they have to decide a claim between parties with asymmetrical economic and political power. The first, which has broad acceptance among policy makers in Brazil, is the *jurisdictional uncertainty hypothesis* (Arida *et al*, 2005) that suggests that Brazilian judges tend to favor the weak party in the claim as a form of social justice and redistribution of income in favor of the poor. Glaeser *et al* (2003) stated the second hypothesis. They suggest that the operation of legal, political and regulatory institutions is subverted by the wealthy and politically powerful for their own benefit, a situation they call *King John redistribution*. An empirical test was conducted analyzing judicial decisions from 16 Brazilian states, showing that a) judges favor the strongest party, b) a local powerful party

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has more chance to be favored than a national or foreign big company, a effect we named *parochial subversion of justice* and c) in Brazilian states where we have more social inequality there is higher probability that a discussed contract clause will not be maintained.

Key Words: Inequality, Subversion of Justice, Property Rights.
Subject Classification: D30, K42, O17

1. INTRODUCTION

The ongoing discussion about the judiciary reform in Brazil brings up two opposite hypotheses concerning the behavior of judges when deciding a claim between opposing parties with different economic and political power. The first hypothesis formulated by Arida, Bacha and Lara-Resende (2005) suggests the concept of *jurisdictional uncertainty* to refer to the uncertainties associated with the settlement of contracts in the Brazilian jurisdiction. This uncertainty manifests itself predominantly as an anti-saver and anti-creditor bias. According to Arida *et al.* (2005), Brazilian judges tend to favor the weaker party in the claim as a form of social justice and redistribution of income in favor of the poor, in a kind of *Robin Hood redistribution*. The second hypothesis was stated by Glaeser, Scheinkman and Shleifer (2003), suggesting that the operation of legal, political and regulatory institutions is subverted by the wealthy and politically powerful for their own benefit, in a situation that the authors call *King John redistribution*. In this case they argue that inequality is detrimental to the security of property rights, and therefore to growth, because it enables the rich to engage in such subversion, as it is showed in the next section.

1.1. The ‘Jurisdictional Uncertainty’ Hypothesis

Some opinion surveys have attempted to confirm the alleged anti-saver and anti-creditor bias pointed by Arida *et al.* (2005). The depth of this bias, they say, may be inferred in Brazil from the answers to an elite opinion survey conducted by two Brazilian political scientists (Lamounier and Souza, 2002). Confronted with the dilemma between the enforcement of contracts and the practice of social justice, only 48% of the 500-plus respondents considered that contracts must always prevail over social considerations. Only 7% of the members of the judiciary said that they were prepared to judge contracts regardless of social considerations, and a full 61% acknowledged that the achievement of social justice would justify decisions in breach of contracts. It should be stressed, however, that these surveys ask what these judges are supposed to do, not what they actually do. This and other pieces of research would be more trustworthy if they were grounded on real cases instead of relying on opinion surveys.

To corroborate the same point, a former IPEA (a large governmental research institute in Brazil) researcher, Armando Castelar Pinheiro (2002b), conducted a survey among judges asking a similar question: If the judges, in deciding a case, should maintain the tenor of the contract clauses or ignore these clauses in order to reach social justice. The results are similar to those of Lamounier and Souza (2002).

However, several studies are devoted to the analysis of the gap between declared intentions and the real actions (Glaeser *et al*, 2000, Lazzarini *et al*, 2005). This could mean that these opinion surveys are measuring something else instead of the way that judges actually decide cases. It could be argued that judges tend to overstate their social role and importance for social change in order to alleviate the image that goes of not being politically engagé.

1.2. The ‘King John’ Hypothesis

The sovereign has an interest in how the dispute is resolved, to punish undesirable conduct, to establish precedents, or to promote deterrence, but also to help his friends and hurt his enemies. In this case justice can favor not only people close to the sovereign, but the wealthy and the politically powerful (Djankov *et al*, 2003). The rich can redistribute from the have-nots by subverting institutions. They can do so through political contributions or bribes or just deployments of legal and political resources to get their way. This is likely to be true, according Glaeser *et al* (2003), in more unequal societies, due the role that inequality has in their model. The ability to punish the judge, when he decides against the interests of the strongest party, will be larger the larger is the income difference among population of a given country. At end, the justice will be more likely to be subverted in these societies.

Following the reasoning of North (1990), it can be said that inequality is harmful to the security of property rights, and therefore to growth, due this possibility of subversion. If one is rich enough, compared to another party and the judicial system is corruptible, then the legal system will favor the rich, not the just. At the end, those who are likely to be expropriated will refrain from contracting with more powerful people. The break down in property rights will deter investments, at least by these potential victims, with adverse consequences for economic growth.²

²It should be stressed that neither Glaeser et al nor this article elaborates too much over the methods used by these powerful parties to subvert justice. It could be done for sure by the recourse to corruption (bribes and other forms), but could also be done by some kind of influence, e.g. the use of newspapers, TV or other mass media to widespread a feeling against people outside the community, or even resorting to threatening and intimidation.

1.3. The Parochial Subversion of Justice Hypothesis

The theoretical proposition of Glaeser *et al* (2003) takes into account not just the economic power, but also a variable they define as political power, that means, the capacity to punish the judge if he does not decide in the favor of the strong party. This ability to punish could be exerted with more efficiency by a local party, who is more likely to have social attachments with the judge of the case, or with people in position to punish this judge when necessary. The modeling of Glaeser *et al* (2003) also suggests that more unequal societies will increase the ability that the political powerful party has to punish .

This theoretical construction to explain the influence exerted by powerful parties resembles the description made about a situation observed in the Northwestern part of Brazil, the ‘coronelismo’³. This phenomenon, described for the first time by Leal (1948), could be understood as the domination of local people by local farmers⁴. These leaders received the status of colonel from Brazilian Central Government, and had their own armies, used to subvert local political systems and justice. Lima Sobrinho (1997, also Ribeiro, 2006) argues that this phenomenon persists with company owners, local politicians and others in the place of the original colonels. The intention is to investigate the possible influence of these local powerful parties over judicial decisions, a hypothesis that will be named here *parochial subversion of justice*. This was tested against the current alternative hypothesis formulated by Arida *et al* (2005), and should be understood as a refinement of the *King John’s redistribution* hypothesis.

2. THE EMPIRICAL TEST

To oppose these two hypotheses, this article in the first part discusses the microeconomic foundations of the concept of *jurisdictional uncertainty*, showing that there are no reasons for the judge to decide against the law and favor the poor. A utility function is discussed taking into account the advantages the judge could gain from this behavior. As a result, it is predicted that judges will refrain from disregarding the original tenor of legislation, and this behavior could favor the wealthy and politically powerful.

After the discussion of this model, the article goes deep in the analysis of judicial decisions to verify the existence of an anti-creditor bias, instead of relying on opinion surveys. In the first phase of the research an empirical test was conducted analyzing 1,019 judicial decisions in São Paulo, the largest GDP among the Brazilian states. The results were published in a

³In Portuguese without equivalent word for English.

⁴This phenomenon could be found in similar forms in other regions of the country, mainly in nineteen and the beginning of twenty century, with other names like ‘caudilhismo’ and others.

previous article (Ferrão, Ribeiro, 2006).

But these results do not prove that the hypothesis of institutional subversion applies. If the judges are neutral, one perspective claims that the result will favor the strongest party (Cappelletti, Garth, 1976, Galanter, 1974), because they are in a better position to conduct a case, as they have easier access to the legal system and lawyers as well as more financial resources to face the costs of the case and to support themselves while waiting for a decision.

2.1. The Behavior of Judges

The behavior of judges, as well as other economic agents aims at maximizing their utility. Some studies have tried to connect the decisions of judges with the favoring of the class or social group to which they belong. The result would be that a judge who is a landowner would favor landowners; judges who walk to work would favor pedestrians and so on (Posner, 1995, p. 581). But in that case the gain the judge could have will be minimal and must be outweighed against possible penalties for deciding disregarding the sound tenor of legislation. These penalties include professional criticism, reversal of decisions in court appeals and damages to the reputation of judges. So far, all these attempts do not seem to show any positive results.

The recruitment of judges, which also influences this behavior, prioritize technical knowledge as any selection of civil servants, and it seems more likely that this criterium yield in the selection of judges concerned with the quality and accuracy of their decisions. As a consequence, this system for hiring judges will favor those that just follow the legislation, avoiding any innovation in its interpretation. Specifically for Brazil, one must take into account the criteria for career evolution in appeal and low-level courts. In half of the promotions the oldest is designated, but in the other half the promotion is done on the grounds of merit, with the number of decisions maintained in higher courts being a decisive aspect.

The main flaw in the *jurisdictional uncertainty hypothesis* is the lack of an explanation about the incentives for judges to decide disregarding the legislation and in favor of the poor. One possible train of thought is to consider the conditions under which redistributive policies could receive political support. Meltzer and Richard (1981) model a situation where voters with high uncertainty about income and risk aversion would be in favor of positive taxes and redistributive policies. Dixit and Londregan (1998) evaluate the role of opportunism, ideology and social welfare in these redistributive policies, and it is easy to point a number of articles analyzing distributive policies (see Drazen, 2000, ch. 8 and also Persson and Tabellini, 2000, ch. 6 for a survey in this literature). The possibility here is to link these models to the behavior of judges, instead of politicians.

2.2. The Description of Empirical Test

To separate the hypothesis that the judges are neutral (or that there is a self-selection of cases) a methodology was developed, based on selected judicial cases in several Brazilian states⁵. This article looks at cases in which parties with recognized local power are in legal battle against:

a) A local citizen with no power, understood as a natural person or a small business. To assure this absence of power, it was ascertained from the documents of the case and public documents that the person is not a politician, government official or belonging to a local oligarchy. The same procedure was adopted concerning small companies.

b) A national company, listed among the 300 largest national groups, or a foreign company.

c) The central government or a state-owned company.

The selection of a local powerful party was made according to the following criteria: if the party were a company, it would be a family owned one, listed among the largest local companies according to the local and national ranks of 'Balanço Anual' from 'Gazeta Mercantil', a well reputed financial newspaper in Brazil. Also included in the sample were family owned companies with local politicians or high public officials among its owners, as well as some cases in which these politicians or high public officials litigate as a natural person. In all cases, the national or foreign company has at least the same size in terms of revenues or assets that the local party, and in most of the cases this party is several times larger than this local one.⁶

The selected cases are concerned with contractual clauses⁷, but in very few of them the discussion is about a title (for a land or a patent) and in two cases it could be argued that the case would be more concerned with torts than with contracts. However, if we disregard these two cases from the sample the results do not change. In short, it could be said that the

⁵The methodology can also assure that the effect is not due to a self-selection of cases, a possible determinant of this result further described in this section.

⁶In spite of having these objective criteria for the selection of parties, it is not to be denied that a bias could emerge from the selection that field researchers do. We do think that all procedures assure the minimal possibility of this bias, and that this is the best result given the conditions we had. The stricter criterion yielded in a lower number of observations, but the result still being significant. We are grateful to Edinaldo Tebaldi, from CAEN/UFC, for his comment in this sense during the XI ANPEC Regional Conference in Economics and BNB Forum on Economic Development in Fortaleza (July, 19-21th) and also to Sérgio Lazzarini (Ibmec/SP) for his comment during the 2006 ESNIE Conference in Cargese, France (May, 15-20th).

⁷The discussion about a single contract clause allows more objectivity in the analysis. If it were chosen judicial cases in which the validity of the whole contract was under judicial appreciation, it would be hard to determine if the contract was maintained or not. In that case, the field researchers could bias the sample by their judgment if the contract was maintained or not. However, the selection of cases with this restriction decreased substantially the size of the sample. We are grateful to Edinaldo Tebaldi and Sérgio Lazzarini for this point too.

cases relate to judicial enforcement of a private arrangement.

As expected from the test reported in Ferrão and Ribeiro (2006), a decision favoring the local strong party is likely to prevail over one favoring a local weak party. But in the case of a national or foreign company it is expected that the local party be favored only if the *Parochial Subversion of Justice* hypothesis applies. It is argued here that a local and powerful party should be in better condition to influence the judge than a party outside the community, even if the latter has more financial resources. If the decision in favor of a national or foreign party prevails, then the judges are acting in a neutral way, and the financial resources play a central role in determining the result of the trial.

It is therefore necessary to consider what the effect of self-selection bias in our hypothesis would be. Strong parties have better lawyers, opportunity to improve the contracts through the time and more experience in judicial cases. This party may only file a case when they have some confidence that courts will enforce the contract, and that could lead to a high rate of success for this party⁸. However, in this case the expected result would be that the national or foreign company often wins the case, because in all of them this party has more economic resources than the local powerful party. If we find significant coefficients for the likelihood of a powerful local party winning, in spite of having this selection bias, it means that the final effect of the *parochial subversion of justice* hypothesis is even stronger.

The cases chosen here also include some in which a local party with no power faces a national or foreign company. These cases were included to control for the hypothesis that judges protect all kind of local parties, and not just the powerful ones. It could be argued too that local parties have better conditions to litigate because they know the local judicial system and good lawyers in the neighborhood among other aspects. It is expected, if the *parochial subversion of justice* prevails, that these parties have less chance of winning a case than the powerful parties.

As a corollary of this rationale, one is expected to find a correlation between inequality indexes and subversion of justice. In this case, more unequal Brazilian states will have higher probability of having the strongest party winning the case. Here, one could argue that it is possible to have a reverse causation: if justice decides consistently in favor of the richer, this will carry more financial resources to these parties, increasing inequality.

⁸We are grateful to Francesco Parisi and Sérgio Lazzarini for comments about this point. As one can see from the development of this argument, this possibility just reinforces the results of the empirical test in favor of the *parochial subversion of justice* hypothesis. However the self-selection bias does not invalidate the results of Ferrão and Ribeiro (2006). If the weak party brings the case to the court with a wrong idea of his likelihood of winning, he will do so with grounds in a contractual clause that was supposed to be maintained, that means, the contract was also subverted in this case.

2.3. The Econometric Model and Variables

An econometric model, departing from Amemiya's Generalized Last Squares method, is used to circumvent the problems with endogenous variables. The structural parameters estimators are calculated from the reduced form parameters estimators. Following the proposition of Newey (1987), the parameters are obtained by the resource to GLS method to estimate the coefficients of the reduced form, using the residues of this regression as additional explanatory variables. This article describes in details the method in Appendix 1. The two-equation model used in the regression analysis regarding the influence of inequality over probability of a contract clause being maintained is:

$$P(\text{Contract} = 1 | \text{Gini}, X_1) = G(\gamma_1 \text{Gini} + X_1 \beta_1 + u_1) \quad (1)$$

$$\text{Gini} = \gamma_2 P(\text{Contract} = 1) + X_2 \beta_2 + u_2 \quad (2)$$

Where *Gini* can be any social inequality indicator, X_1 is a vector of exogenous variables, β_1 is a vector of regressor parameters and u_1 is a vector of disturbances in equation (1). In equation (2), X_2 is a vector of instrumental variables excluded from equation (1). The function G is a standard normal cumulative function, giving us a Probit model with an endogenous explanatory variable.

The instrumental variable used in the regressions is the cohort size (as proposed by Higgins and Williamson, 1999), expressed as the ratio of the population 40 to 59 years old to the population 15 to 69 years old. When we have a 'fat cohort' in the middle of the age-earnings curve where life-cycle income is highest, this labor market glut lowers income in the middle, thus tending to flatten the age-earnings curve (Higgins, Williamson, 1999) and for this reason cohort size is a predictor of the inequality. On the other hand, there is no reason to relate this 'fat cohort' to the favoring of a local powerful party in judicial cases.

Bound, Jaeger and Baker (1995) raised the problem with instrumental variables estimation when the correlation between the instruments and the endogenous explanatory variables is weak, and Hahn and Hausman (2003) suggest that the cause of *weak instruments* is often stated to be a low R^2 or F statistic of the reduced-form equation, in the most commonly occurring situation of one right-hand-side endogenous variable. As it can be seen from Table 2, the correlation between cohort size and GINI index is high (0.67)⁹. It was added among the results for the two-stages regressions the R^2 and F statistics for the first stage (see Table 6, regressions 16 and 17), showing that cohort size is an acceptable instrumental variable.

⁹The correlation between cohort size and others inequality indexes is also high, e.g. for Theil inequality index (0.56) and for 20+/40- index (0.68).

In the research two different tests were conducted, and the results are respectively in the tables 3 and 4. In the first test the dependent variable is the likelihood that a contractual clause will be maintained by the judicial decision. This likelihood would not to be related with the economic power of the party, with the fact that there is a local party in the case and with the social inequality level, if the judiciary were to be impartial and if the local court were to provide jurisdictional certainty. That means that the contract must be maintained by its own merits and not because of the material advantages that one party has over the other. To do so one *dummy* variable was added, assuming the value 1 (one) when the contract clause in discussion favors a local powerful party and 0 (zero) otherwise¹⁰. It is expected that the coefficient of this variable would show the raise in the likelihood of winning that a local powerful party has when the contractual clause is in his/her favor. That means, the coefficient will reflect the net effect of the *parochial subversion of justice* hypothesis. In a similar way, it was added a *dummy* variable to inform if the contractual clause under discussion favors a local party with any political or economic power¹¹, and one third *dummy* variable to inform if this contractual clause favors a large national or multinational company¹².

In the second test it was checked the likelihood of a local party be favored. The favoring of a local party is a dependent dichotomous variable that assumes value 1 (one) whether in the cases in which the judge decides to maintain a contractual clause that favors the local party or in the cases in which the judge decides not to maintain a contractual clause that disfavors a local party and that assumes value 0 (zero) otherwise. It could be argued that if the contractual clause favors the local party it would be natural that this party had more chance of winning the case. To control for this hypothesis a *dummy* variable was added, assuming the value 1 (one) if the clause favors the local powerful party and 0 (zero) otherwise. An analysis of the documents of the cases was conducted to ascertain to who the contract clause was in favor. One explanatory variable was added in the model as an exogenous regressor to show if there is a local powerful party. This latter variable is supposed to show the net effect of the *parochial subversion of justice* hypothesis, establishing whether the local economic or political power is important to the final result of the case or not.

The control for the facts of the case needs some considerations. Suppose that higher courts reached a standardized understanding about one type of case or that there is a new legislation imposing this understanding. It could be an understanding in favor of the creditors, like the recent decision of the

¹⁰When there is not a local powerful party in the case, this dummy variable did not have any value attributed. The total of cases with one local powerful party was 55.

¹¹When there is not a local party with any economic or political power in the case, this dummy variable did not have any value attributed. The total of cases with one local party in this condition was 50.

¹²When there is not a national or multinational company in the case, this dummy variable did not have any value attributed. The total of cases in this situation was 46.

Brazilian Supreme Court (the Supremo Tribunal Federal of STF), followed by a constitutional amendment, stating that the 12% constitutional ceiling for interest rates is not applicable to contracts. On the other hand, it could be an understanding in favor of the debtors, e.g. the prohibition of clauses allowing the creditor to fulfill and sign, in the name of the debtor, credit titles in order to recover alleged losses in the contract between them. These standardizations are more related to legislative initiatives or political understanding than to the behavior of judges. If we include in the sample several cases of the former decision, the result shows that judges will favor the creditors. If we include several cases of the latter, the result shows the opposite. To circumvent this problem the repeated cases are excluded from the sample, remaining just a few of them chosen with a random criteria¹³.

The example above is an interesting one to stress some important points in the present analysis. In the case of STF's decision about the validity of 12% ceiling for interest rates it could be argued that, if an investor believed and had the expectation that could freely contract about the interest rate, even with 10% of judicial cases with contrary decisions would be harmful and would introduce "jurisdictional uncertainty" in credit markets. Indeed, the variability in judicial decisions about the validity of certain legislation could bring *uncertainty*, and the effects of this uncertainty would undermine not only the willingness to invest, but also the performance of companies and investments. Ribeiro (2005d, 2006c) shows, after careful construction of hypotheses and models and after detailed empirical tests, that the variation in judicial decisions in commercial cases and disputes among shareholders harms the performance of companies and lowers the effort made by administrators in pursuing good results. The research also shows that a specialized justice reduces this uncertainty, e.g. in the case of the specialized court in commercial cases of Rio de Janeiro the decisions in disputes among shareholders stands a chance between 12,5% and 15% lower of being reformed in higher courts than decisions in similar cases from ordinary justice. However, the point rose with the proposition of the concept of *jurisdictional uncertainty* by Arida *et al* (2005) is related to the possibility of bias, not the possibility of this uncertainty just described. The consequences of these two possibilities vary in a wide range when became time to chose public policies to deal with them, as have shown the propositions of Ribeiro (2006c).

The GINI coefficient, the Theil coefficient and the ratio between the income of the 20% richest and the 40% poorest part of the population for each Brazilian state were chosen as the measures for social inequality, all them calculated from data of Brazilian Census of 2000 (PNUD, 2003).

¹³This criterion was followed also in Ferrão and Ribeiro (2006). We are grateful to people that raised this point, specially to Maria Alessandra Rossi, during the 2006 ESNIE Conference at Cártese, Robert Sherwood, Matthew Taylor and also to one anonymous referee during the X Conference of Latin American and Caribbean Law and Economics Association (ALACDE) in Buenos Aires.

Finally, the regressions were controlled for years of schooling, GDP per capita and the percentage of urban population in each state, all data from IPEA (2006). In all regressions the results hold with all inequality indexes, with similar p-values – in most of the cases, 1%, and there is no situation in which the change of the inequality measure modifies the results. For this reason, we present the results just for GINI index.

2.4. The Results of Ferrão and Ribeiro (2006)

The first test we mentioned, regarding the test of 1,019 judicial decisions in São Paulo, resulted in 171 decisions included in the regressions. The decisions dropped were concerned more with procedural code discussions or were decisions in repeated cases.

In the research published in Ferrão and Ribeiro (2006) it was considered cases in eight law areas, with different regulation levels in each of them. The cases were separated into these areas, and a measure of the degree of regulation was provided with basis on the methodology developed by Ribeiro (2005)¹⁴. Table 1 (reproduced from Ferrão and Ribeiro, 2006) shows the values of this degree of regulation measure.

The regressions from Table 2, also from Ferrão and Ribeiro (2006) show that the strongest party stands between 38% and 45% more chances of having the contract clause maintained than the poorest party when it is beneficial for him¹⁵. That is to say, when we have a case brought to the court discussing the validity of a contract clause, the decision of the judge will be for the maintenance of that clause with around 40% more chance if this clause is beneficial to the strongest party.

The number of observations varies in each equation depending on the explanatory variables included in the test. In the cases in which it was tested only the influence of the degree of regulation, the number of observations reached to the full size of the sample (181 observations in equation 3), but when comes the time to measure the influence of having a strong party in the cases analyzed, it was possible to identify a strongest party just for 129 cases (results from equations 1, 4 and 5). An additional test was conducted, including just cases that bring discussions about commercial or financial contracts, and in that case we have just 32 observations. This test was conducted because the proposition made by Arida *et al* (2005) stated that the worst consequence of the *jurisdictional uncertainty* would be in commercial and credit cases.

¹⁴A greater degree of regulation in one area increase the probability of having an illegal clause in the contract, and in that case the judge would ignore this clause not because he wishes to do so, but because he must.

¹⁵Huber/White/sandwich estimator of variance was used in place of the traditional calculation, and the values for standard errors founded were not so different from those calculated disregarding the likelihood of the presence of heteroskedasticity. See Appendix 2 for a discussion about small departures from homoskedasticity in Probit models.

Table 1 – Degree of Regulation.

	Labor Cases	Commercial Cases	Consumers Rights Cases	Environment Cases	Landlord-Tenant Relations	Social Security Cases	Credit Market	Regulation Cases
Mean	5,94	1,68	5,43	6,53	2,94	6,03	2,32	5,23
Standard Deviation	0,76	0,88	0,59	0,76	0,80	0,76	0,84	0,95

Source: Ferrão, Ribeiro (2007).

Table 2: Probability of a contract being maintained in a lawsuit.

	1	2³	3	4	5
Degree of Regulation			-0,2228*** (0,0264)	-0,1899*** (0,0293)	-0,0764 (0,0508)
Contract favors the strongest party	-0,0842 (0,1102)	0,3885** (0,1941)		-0,0682 (0,1425)	0,4541** (0,1166)
Degree of regulation x the presence of a strongest party					-0,1587*** (0,0613)
Number of Observations	129	32	181	129	128
Log Likelihood	-84,8465	-8,9789	-83,4932	-61,0164	-57,8860
Pseudo R ²	0,26	0,26	0,33	0,28	0,31

Table Notes: 1 – Instead the coefficients, the table shows the alteration in dependent variable due to a slight change around the mean in the explanatory variable (dF/dx), when it is a continuous variable, or due the change from 0 to 1 with dichotomous variables. 2 – Standard errors calculated using Huber/White matrix. 3 – Just for commercial and credit cases. *** Significant at 1% ** significant at 5% * significant at 10%. Source: Ferrão, Ribeiro (2007).

The heavy regulation of some areas interferes in a lower degree and is not significant when one takes into account the interaction between the level of regulation and the presence of a contract in favor of the strongest party. When we consider the interaction, it is possible to say that the initial advantage that the strongest party has (45%) is greater than the advantage that regulation gives to the weak party¹⁶.

3. THE RESULTS FROM THE ‘PAROCHIAL SUBVERSION OF JUSTICE’ HYPOTHESIS

It was discussed in previous parts of this work that the results from Ferrão and Ribeiro (2006) are not conclusive regarding the hypothesis of the favoring of the richer and politically influential party. If the judges are neutral, the party with more financial resources could still winning the case, since he is in better conditions to conduct the case. This point shows the need for the empirical test described in section 2.2, capable of separating the hypothesis of a neutral judge from the hypothesis of a judge favoring the strong party. Tables 5¹⁷ and 6 show the results of the empirical test conducted analyzing 86 judicial decisions from 16 Brazilian states to answer this question, and Table 3 and 4 show descriptive statistics of the series of data used in this research.

Table 5 shows ordinary Probit regressions to test the *parochial subversion of justice* hypothesis. Equation 1 shows that the contract clause stands almost 41% more chance of being maintained if it is beneficial to a strong local party, a result that holds if it is added as explanatory variables the degree of inequality (equations 3 to 6), GDP *per capita* (equation 4), average years of schooling (equation 5) and percentage of urban population (equation 6)¹⁸. All these variables decrease the likelihood of the contract clause being maintained. However, if the contract clause favors the weak local party (equations 7 and 8) the result is the opposite, and this party stands around 26% less chances of having the contract clause maintained. The conclusion here could be that the strongest party is more capable of conducting the case, or that we have a selection of case bias. But how

¹⁶One can say that is not possible the direct comparison between the coefficients, since the first is a dummy variable and the second is a continuous variable. However, if we take into account that the maximum difference in the level of regulation among legal areas is around 3, it would be possible to say that the regulation could, in the worst hypothesis, reestablish the balance between parties in the case, since the coefficient is about 15% around the mean and certainly lower for the rest of the curve.

¹⁷Again, Huber/White/sandwich estimator of variance was used in these regressions. See Appendix 2 for some considerations about the effects of homoskedasticity in two-stage Probit models.

¹⁸Specifications including inequality and more than one of the other explanatory variables (GDP *per capita*, years of schooling and urban population) do not alter the results either for inequality or for the presence of a contract favoring the local strong party. In these specifications the coefficients for urban population and GDP per capita are not significant, but the coefficients for years of schooling are.

could we explain the results in equations 9 and 10, showing that if the contract clause favors a national or foreign company, we do not have any impact over this probability? These national or foreign companies have more financial resources, larger legal departments and more experience in conducting cases than the local powerful parties, and yet this does not interfere in their possibility of having the contractual rights recognized by the court. Furthermore, if we split this sample into two parts, one in which there are just the cases where a national or foreign party faces a local influential party and another where these same parties face a local weak party, it is possible to observe that this national or foreign party has 38% less chance of having a contract clause maintained by the courts, when this contract clause is beneficial to him and the opposite party has a local power (result in Equation 11)¹⁹. It is to be stressed that this result holds in spite of having a lower number of observations.

Finally, we can see that the fact that the contract clause favors the local strong party explains 14% of the result (R^2 of equation 1), but if the clause favors a weak party or a national or foreign company that explains too little of the result (R^2 of equations 7 and 9, respectively 4% and 1%)²⁰. These results confirm the results of Ferrão and Ribeiro (2006), showing that there is no favoring to the weak party, that means, no evidence of the *jurisdictional uncertainty hypothesis*, even if the test were extended to the whole country²¹. It also shows some evidence of the opposing hypothesis, the *parochial subversion of justice* hypothesis. The results in table 5 also show the importance of social inequality to the phenomenon. In Brazilian states with a greater degree of social inequality there is a lower probability of the contract clause being maintained. This result holds if another inequality index is used, like Theil index or the ratio between the mean income of the 20% richest part of the state population and the mean income of the 40% poorest part. This result seems to confirm the proposal of Glaeser *et al* (2003), that in more unequal societies there is a greater probability of subversion of justice.

¹⁹The results concerning to the local weak party were not significant, despite having the sign predicted by Ferrão and Ribeiro (2006), and were omitted. The lack of significance could be due the small number of observations (only 19 observations). We are grateful to an anonymous referee during the presentation in FGV-Rio for this idea of splitting the sample.

²⁰The values reported are those of the pseudo R-squared measures. McFadden (1974) suggested the measure $1 - \mathcal{L}_{ur}/\mathcal{L}_0$, where \mathcal{L}_{ur} is the log-likelihood function for the estimated model, and \mathcal{L}_0 is the log-likelihood function in the model with only an intercept. Percent correctly predicted for all observations, as well as separated percentages of correctly predicted 1's and 0's were added, with the number of observations correctly predicted and the number of observations between parentheses.

²¹Some people have argued that the results from Ferrão and Ribeiro (2006) could not hold if we extend the analysis to the Brazilian states from the South, where a tendency called 'alternative use of justice' appears to have some influence. We are grateful to two anonymous referees from University of São Paulo Law School for these comments.

Table 3: Data Description.

Estate		Gini	Theil	Cohort	Pib	20+/40-	Urb. Pop.	Years of School	Maintained ¹	Not Maint. ²
Acre	AC	0,648	0,718	0,15	1,04	21,707	66	5,6		
Alagoas	AL	0,691	0,816	0,18	0,85	27,963	68	4,3		
Amazonas	AM	0,683	0,786	0,15	2,29	29,429	75	7,1		
Amapá	AP	0,637	0,708	0,14	1,41	20,776	89	6,7		
Bahia	BA	0,669	0,775	0,20	1,26	23,738	67	4,7	4	0
Ceará	CE	0,675	0,816	0,19	0,96	24,696	72	4,7	1	3
Distrito Federal	DF	0,640	0,781	0,21	4,93	22,317	96	8,7	2	2
Espírito Santo	ES	0,608	0,651	0,23	2,38	16,005	80	6,2		
Goiás	GO	0,611	0,648	0,22	1,48	15,283	88	6,0	4	2
Maranhão	MA	0,659	0,758	0,17	0,56	22,207	60	4,3	1	3
Minas Gerais	MG	0,615	0,671	0,24	2,03	16,504	82	5,9	4	2
Mato G. do Sul	MS	0,627	0,692	0,22	1,95	16,849	84	6,1		
Mato Grosso	MT	0,630	0,685	0,20	1,83	17,036	79	6,0	5	2
Pará	PA	0,655	0,744	0,17	1,04	20,899	67	6,0		
Paraíba	PB	0,646	0,734	0,20	0,92	20,336	71	4,6		
Pernambuco	PE	0,673	0,795	0,21	1,26	24,310	77	5,2	1	2
Piauí	PI	0,661	0,796	0,19	0,64	22,304	63	4,1		
Paraná	PR	0,607	0,652	0,24	2,36	15,630	81	6,6	4	0
Rio de Janeiro	RJ	0,614	0,664	0,28	3,28	16,953	96	7,5	4	2
Rio G. do Norte	RN	0,657	0,731	0,20	1,15	22,259	73	5,2	2	0
Rondônia	RO	0,614	0,639	0,18	1,39	17,022	64	6,0		
Roraima	RR	0,622	0,643	0,16	1,18	19,901	76	6,5		
Rio Gde. do Sul	RS	0,586	0,617	0,29	2,86	14,294	82	6,7	2	1
Santa Catarina	SC	0,560	0,551	0,25	2,71	12,011	79	6,8	12	1
Sergipe	SE	0,658	0,763	0,19	1,14	21,943	71	5,6	3	4
São Paulo	SP	0,592	0,607	0,26	3,42	14,646	93	7,3	8	2
Tocantins	TO	0,662	0,738	0,18	0,72	22,377	74	5,3	1	2
Average		0,637	0,710	0,20	1,74	19,978	77	5,9	3,6	1,8
Total									58	28

1 – Number of cases in which the contract clause was maintained, per Brazilian Estate and whole country. 2 – Number of cases in which the contract clause was not maintained.

Table 4: Correlations.

	Cohort	Gini	Theil	20+/40-	PIB	Urban	Schooling
Cohort	1,00						
Gini	-0,67	1,00					
Theil	-0,56	0,96	1,00				
20+/40-	-0,68	0,96	0,92	1,00			
PIB	0,61	-0,55	-0,41	-0,41	1,00		
Urban	0,56	-0,52	-0,43	-0,46	0,79	1,00	
Schooling	0,36	-0,56	-0,50	-0,41	0,88	0,79	1,00

Table 5: Probability of contract being maintained¹.

	1	2	3	4	5	6	7	8	9	10	11	12
Contract favors a strong local party	0.4066*** (0.1175)		0.3421** (0.1271)	0.4047*** (0.1199)	0.4083*** (0.1214)	0.3906*** (0.1220)						
Contract favors a weak local party							-0.2494 (0.1651)	-0.2708* (0.1802)				
Contract favors a national/foreign company									-0.1372 (0.1625)	-0.0581 (0.1884)	-0.3816* (0.1925)	-0.12821 (0.2291)
Inequality (GINI)		-	-4.1643** (1.6768)	-	-	-		-3.4229* (1.9625)		-		-5.4639* (3.0752)
		5.2776*** (1.5250)		7.2292*** (2.3168)	9.1266*** (2.6211)	6.4324*** (2.1921)				6.0955*** (2.3422)		
Average years of schooling					-0.2638** (0.1178)							
Percentage of urban population						-0.0177* (0.0096)						
GDP <i>per capita</i> (In US\$ 1,000)				-0.1874* (0.1042)								
Number of Observations	55	86	55	55	55	55	50	50	46	46	27	27
Log Likelihood	-31.5187	-49.1733	-28.8639	-27.5054	-26.5194	-27.2436	-27.3688	-25.6171	-31.1463	-27.8606	-17.0028	-15.2987
Pseudo R ²	0.14	0.12	0.21	0.25	0.27	0.26	0.04	0.10	0.01	0.12	0.09	0.18
Total predicted ⁴	69% (38/55)	71% (61/86)	76% (42/55)	75% (41/55)	73% (40/55)	75% (41/55)	74% (37/50)	68% (34/50)	57% (26/46)	70% (32/46)	66% (18/27)	82% (22/27)
0's predicted	81% (17/21)	53% (16/30)	67% (14/21)	71% (15/21)	57% (12/21)	71% (15/21)	0% (0/13)	0% (0/13)	0% (0/20)	65% (13/20)	86% (12/14)	87% (13/15)
1's predicted	62% (21/34)	80% (45/56)	82% (28/34)	76% (26/34)	82% (28/34)	76% (26/34)	100% (37/37)	92% (34/37)	100% (26/26)	73% (19/26)	46% (6/13)	75% (9/12)

1 – Instead the coefficients, the table shows the alteration in dependent variable due to a slight change around the mean in the explanatory variable (dF/dx), when it is a continuous variable, or for the change from 0 to 1 with dichotomous variables. 2 – Standard errors calculated using Huber/White matrix. 3 – Controlled for endogeneity using AGLS with cohort size as an instrument. 4 – The result is predicted to be 1 when the probability is higher than 0.50, and 0 otherwise. The values between parentheses are the ratio between the values correctly predicted and the total of observations. *** Significant at 1% ** significant at 5% * significant at 10%.

Table 6: Probability of a local party being favored¹.

	13	14	15	16	17	18³	19³
Contract favors a local party	0.1710 (0.1526)	0.2859* (0.1586)				0.2859* (0.1567)	
Contract favors a national/foreign company			-0.1404 (0.1753)	-0.3127* (0.1598)	-0.3192* (0.1702)		-0.3187 (0.1725)
Local party has political or economic power	0.2869** (0.1233)	0.2656* (0.1371)	0.3813** (0.1408)	0.3459** (0.1597)	0.2478 (0.1809)	0.2579* (0.1410)	0.3379** (0.1615)
Inequality (GINI)		10.0570*** (2.5432)		9.2181*** (2.8299)	3.9374 (4.6766)	10.7881*** (2.8166)	9.6840*** (3.2896)
Average years of schooling							
Percentage of urban population							
GDP <i>per capita</i> (In US\$ 1,000)					-0.2263 (0.1768)		
Number of Observations	63	63	46	46	46	63	46
Log Likelihood	-40.1183	-30.5409	-27.9287	-21.8985	-20.9304	-32.3850	-23.5627
Pseudo R ²	0.08	0.30	0.12	0.31	0.34	0.26	0.26
F statistic for the first stage						49.10	29.02
R ² for the first stage						0.64	0.67

1 – Instead the coefficients, the table shows the alteration in dependent variable due to a slight change around the mean in the explanatory variable (dF/dx), when it is a continuous variable, or for the change from 0 to 1 with dichotomous variables. 2 – Standard errors calculated using Huber/White matrix. 3 – Controlled for endogeneity using AGLS with cohort size as an instrument. *** Significant at 1% ** significant at 5% * significant at 10%.

Table 6 shows the results for equations that have the favoring of a local party in the decision of the case as a dependent variable. The favoring of a local party is a dichotomous variable that assumes the value of 1, either the judge of the case maintains a contract clause that is in favor of a local party or he ignores a contract clause that is unfavorable to a local party, and 0 otherwise. For sure that this probability is greater in the first case, in which the contract clause is in favor of a local party, and to isolate this effect we added an explanatory dummy variable that assumes the value of 1 if the contract clause favors the local party and 0 otherwise. In equation 13 it can be seen that the power of a local party is more important than the fact that the contract clause favors a local party, and if we add the GINI index as an explanatory variable (eq. 14) the result holds for the power of a local party, but the favoring of a contract clause gains some importance.

This result shows that, if we control for the level of inequality, the judge tends to take into account the contract clause when deciding the case, which means that in more unequal states the judges tend to ignore the contract clause. Table 6 also shows that the results when we add inequality as an explanatory variable are consistent and significant (equations 14 and 16). Higher levels of inequality decrease the likelihood of the contract clause being maintained. The magnitude of the coefficient can be explained by the nature of the GINI coefficient, which varies from 0 to 1 maximum. It can be said, to better understand the result, that an increase in the GINI coefficient of 1% (departing from the mean value) will result in a decrease in the chances of the contract clause being maintained from 4% to 11%. The results are consistent not only for the specifications in Table 6, but for all specifications including other explanatory variables, like the average years of schooling, the percentage of urban population, GDP per capita, and another social inequality index, in all possible combinations. In the specifications that were omitted here, the added variables are not significant, except for average years of schooling, and the results concerning the main hypothesis hold.

Equation 15 shows that the fact that the contract clause favors a national or foreign company is not significant, although if we add the GINI coefficient (equation 16) the coefficient became significant, but a slight lower than the coefficient for the power of a local party. It was expected that cases where the contract clause favors a national or foreign party would have limited room for judges' discretionarily, reducing the likelihood of the favoring of a local party. However, what we see is that this is true just in less unequal states, and this reinforces the *parochial subversion of justice hypothesis*. The influence of inequality also holds with the exception of equation 17 in which the presence of more explanatory variables and the use of AGLS could result in such a reduction of the degree of freedom that could justify the non-significant result.

The favoring of the local strong party holds, with higher coefficients ranging from 26% to 36%, even when controlled for endogeneity (equations

18 and 19).

4. CONCLUSIONS

The results of this research emphasizes that impartiality of justice is essential to economic development. The likelihood of being expropriated will discourage investors outside the community from investing. The potential gains and the development that could result from long distance trade will not be achieved and these states will not benefit from specialization and inter-region trade. The situation here seems the opposite of what was observed in Europe from the 11th to the 14th centuries, when the creation of institutions that could assure the property rights favored the reemergence of commerce. At that time, the most important aspect was that these institutions promoted confidence among investors, in order to make feasible investments between parties that never met before and that had little probability of facing each other again in another negotiation.

However, it is not enough to have contracts in favor of powerful parties outside the community enforced, but it is also necessary to assure to everyone who decides to engage in a contract that this contract will be respected. The Brazilian Supreme Court conducted research in Rio de Janeiro in 2004 and discovered that 49.5% of torts claims in Small Claims Court in the city were filed against only 16 companies. These companies were ordered to pay damages worth US \$2.3 billions, and they still operate with the same harmful practices. In this context, the person who is likely to have his property rights violated and his contracts not maintained will refrain from contracting with powerful parties, depressing the credit market, lowering the value of trademarks (since the quality guarantee is not enforceable) and increasing the informal market.

The *Parochial Subversion of Justice* acts over the two sides of the market transactions. It lowers the offer of credit, goods and investments by not assuring to parties outside the community that their contracts will be respected, and it also lowers the demand by not assuring to local consumers, small investors and other not so influential local parties that their contracts will also be respected and that they will not be expropriated by a local powerful party. The result would be a decrease in economic activity and an increase in social inequality. The article as a consequence would be understood as an innovative demand overview from benefits of a well-functioning market.

For the policy-makers and researchers the article shows that the opinion surveys are not enough for a proper investigation of the problems of a given judicial system, and must be followed by deeper analyses, in order to reach to a refined diagnose that should precede reforms. The obstacle posed by the difficulty of measuring legal variables must be circumvented by the resource to more refined techniques (Ribeiro, 2005) and empirical research is mandatory if the problems are to be appropriately understood.

APPENDIX A: THE AGLS MODEL

The regressions of the research were made with a Probit model with endogenous explanatory variables, developed as a user command for Stata statistical software by Joe Harkness, from Johns Hopkins University. The program implements Amemiya Generalized Least Squares (AGLS) estimator for Probit and Tobit with endogenous regressors.

This estimator is obtained by applying Probit to the reduced form for the equation of interest and then solving back via a generalized least squares approach to obtain the structural parameters. To see how it is done, consider the two-equation model²²:

$$\begin{aligned} y_{1i} &= \gamma_1 y_{2i} + \beta' x_{1i} + u_{1i} \\ y_{2i} &= \gamma_2 y_{1i} + \beta' x_{2i} + u_{2i} \end{aligned}$$

Which can be expressed in matrix notation as:

$$y_1 = \gamma_1 y_2 + X_1 \beta_1 + u_1 \tag{1a}$$

$$y_2 = \gamma_2 y_1 + X_2 \beta_2 + u_2 \tag{2a}$$

And having the following reduced forms:

$$y_1 = X \Pi_1 + v_1 \tag{3a}$$

$$y_2 = X \Pi_2 + v_2 \tag{4a}$$

It is possible to define two matrices J_1 and J_2 in a way that $XJ_1 = X_1$ and $XJ_2 = X_2$. Substituting (4a) into (1a), it will be found that:

$$y_1 = \gamma_1 X \Pi_2 + XJ_1 \beta_1 + \gamma_1 v_2 + u_1 \tag{5a}$$

If one equals (5a) to (3a), after some calculus one will get:

$$\Pi_1 = \gamma_1 \Pi_2 + J_1 \beta_1 \tag{6a}$$

Similarly, if one substitutes (3a) into (2a) and equals the result to (4a), the result will be:

$$\Pi_2 = \gamma_2 \Pi_1 + J_2 \beta_2 \tag{7a}$$

Amemiya suggests estimating equations (6a) and (7a) directly by regression methods, writing $\hat{\Pi}_1$ for Π_1 and $\hat{\Pi}_2$ for Π_2 . In this case, the equation (6a) would be:

²²This section comes from the detailed description that Maddala (1983) made about Amemiya (1979) classical article. In this article, Amemiya suggested a estimator as an alternative to the two-stage estimator used by Nelson and Olsen (1978).

$$\hat{\Pi}_1 = \gamma_1 \hat{\Pi}_2 + J_1 \beta_1 + \eta_1 \quad (8a)$$

where

$$\eta_1 = \hat{\Pi}_1 - \Pi_1 - \gamma_1(\hat{\Pi}_2 - \Pi_2) \quad (9a)$$

Newey (1986) proposed that this estimator would be calculated by applying GLS to estimates of the reduced form coefficients that is obtained by using reduced form residuals as additional explanatory variables. He derives these estimators from general results on asymptotic efficiency of two-stage and Amemylia GLS estimators²³. He proposes a general model that can subsume several different limited dependent variable models.

To begin with, let's consider the following endogenous explanatory variables model:

$$y_t^* = Y_t \beta_0 + X_{1t} \gamma_0 + u_t = Z_t \delta_0 + u_t, \quad t = 1, \dots, n, \quad (10a)$$

where $Z_t = [Y_t, X_{1t}]$, $\delta_0' = [\beta_0', \gamma_0']$, Y_t is the t th observation of a $1 \times r$ vector of endogenous explanatory variables, X_1 is a $1 \times s$ vector of exogenous explanatory variables, and δ_0 is the $q \times 1$ vector of regression parameters for this equation, with $q \equiv r + s$. The real value of y_t^* is not observable, but rather a value of y that results from $\tau(y_t^*, \psi_0)$, where the second parameter is a vector of parameters with $m \times 1$ size. If this function were the maximum value of y^* between y^* and zero, we would have a censored regression model. It is also possible to have as a result just two values, either zero or one, expressing a binary choice model.

The equation below relates the endogenous variables of the model to a $1 \times K$ vector of instrumental variables, and also is the reduced form equation for the endogenous explanatory variables in equation (10a):

$$Y_t = X_1 \Pi_0 + V_t = X_{1t} \Pi_{10} + X_{2t} \Pi_{20} + V_t \quad (11a)$$

where Π_{10} is a $s \times r$ matrix of coefficients for the instrumental variables that are included in equation (10a), Π_{20} is a $(K-s) \times r$ matrix of coefficients for the instrumental variables that are *excluded* from equation (10a), $\Pi_0 \equiv [\Pi_{10}', \Pi_{20}']'$ and V is a $1 \times r$ vector of disturbances.

It is possible to have the reduced form equation for y_t^* by substituting equation (11a) in equation (10a), as follows:

$$y_t^* = (X_1 \Pi_0 + V_t) \beta_0 + X_{1t} \gamma_0 + u_t \quad (12a)$$

$$y_t^* = X_{1t} \Pi_{10} \beta_0 + X_{2t} \Pi_{20} \beta_0 + V_t \beta_0 + X_{1t} \gamma_0 + u_t \quad (13a)$$

²³See Newey (1987), specially section 5 for the background of Harkness' implementation of the 'divprob' Stata user command. Some passages of this article are reproduced here, with some details added.

Rearranjing similar terms and taking $\alpha_{10} \equiv \Pi_{10}\beta_0 + \gamma_0$, $\alpha_{20} \equiv \Pi_{10}\beta_0 + \gamma_0$, $\alpha_0 \equiv (\alpha'_{10}, \alpha'_{20})'$ and $v_t \equiv u_t + V_t\beta_0$, one gets:

$$y_t^* = X_t\alpha_0 + v_t \quad (14a)$$

The parameters are related by the equation:

$$\alpha_0 = D(\Pi_0)\delta_0 \quad (15a)$$

Where $D(\Pi_0) \equiv [\Pi, I_1]$ and I_1 is the $K \times s$ selection matrix such that $X_{1t} = X_t I_1$. The identification assumption rank $(\Pi_{20}) \equiv r$ is satisfied and δ_0 is the unique solution to equation (15a).

Rivers and Vuong (1984) suggested an estimator to δ for Probit model, substituting the least squares estimator $\hat{\Pi}$ in the conditional log-likelihood for y_t , under the assumption that the disturbances of equations (10a) and (11a) are multivariate normal, conditional on X_t . From the derivation of a general relationship between two-stage and AGLS estimators, Newey (1986) concludes that AGLS estimator of δ is a member of the class of minimum distance estimators $\hat{\delta}_W$ that solves:

$$\min_{\delta} (\hat{\alpha} - \hat{D}\delta)' \hat{W} (\hat{\alpha} - \hat{D}\delta) \quad (16a)$$

Where \hat{W} is a positive semi-definite matrix with $p \lim(\hat{W}) = W$, and $\hat{\delta}_W$ is obtained by minimizing the distance between two estimates $\hat{\alpha}$ and $\hat{D}\delta$ of the reduced form coefficients, with \hat{W} measuring the distance. The AGLS estimator $\hat{\delta}_A$ is obtained by choosing $\hat{W} = \hat{\Omega}^{-1}$, where $\hat{\Omega}$ is a consistent estimator of the asymptotic covariance matrix Ω of $\sqrt{n}(\hat{\alpha} - \hat{D}\delta_0)$, assumed as non singular. The construction of a consistent estimator of Ω requires use of a consistent estimator of β as well as a consistent estimator of the joint asymptotic covariance of $\hat{\alpha}$ and $\hat{\Pi}$. The two stages instrumental variables (2SIV) estimator can be used in the construction of $\hat{\Omega}$, or it can be used $\hat{\delta}_W$ for some choice of non-random \hat{W} , that means, \hat{W} equal to an identity matrix.

Amemyia (1978) showed that the AGLS estimator is asymptotically efficient relative to any other estimator $\hat{\delta}_W$ obtained from (16a).

Newey (1986) uses this previous result and the result of the comparison of efficiency of the AGLS estimator related to the minimum chi-square (MCS) estimator to propose a simple to compute AGLS estimator. He reaches to a relative simple form of Ω , which allows one to have a consistent estimator of Ω , departing from the residuals of a 2SIV of Y_t . The calculus of Ω also drawn from the use of any of the standard estimators of the covariance matrix of the minimum likelihood estimator in specific models where the conditional log-likelihood has a standard form, which is the case of the Probit model used in this article. For a more detailed approach of these procedures, see Newey, especially section 5.

5. APPENDIX B: THE EFFECTS OF HETEROSKEDASTICITY
OVER PROBIT AND TWO-STAGE PROBIT MODELS²⁴

Suppose that we have two vectors \underline{x}_1 and \underline{x}_2 and that if one is sampling conditional on elements of \underline{x}_1 the variance of the residual is σ_1^2 but if one is sampling conditional on the elements of \underline{x}_2 the variance is σ_2^2 . Let X and X^* be defined as:

$$X = \begin{bmatrix} \frac{1}{\sigma}(\mathbf{1} \ \underline{x}_1) \\ \frac{1}{\sigma}(\mathbf{1} \ \underline{x}_2) \end{bmatrix} \quad X^* = \begin{bmatrix} \frac{1}{\sigma_1}(\mathbf{1} \ \underline{x}_1) \\ \frac{1}{\sigma_2}(\mathbf{1} \ \underline{x}_2) \end{bmatrix}$$

Then the correct underlying model is given by:

$$\begin{bmatrix} \underline{y}_1^*/\sigma_1 \\ \underline{y}_2^*/\sigma_2 \end{bmatrix} = X^* \begin{bmatrix} \alpha \\ \beta \end{bmatrix} + \begin{bmatrix} \epsilon_1 \\ \epsilon_2 \end{bmatrix}$$

Where the residuals have unit variances.

If we omit to model the heteroskedasticity and incorrectly assume a common variance σ^2 , then then the exact MC biases may be obtained directly by taking probability limits of the explicit MC estimators. Approximate ML biases may be obtained by taking a linear Taylor series expansion of the 'plimmed' first order conditions²⁵. These are of the form:

$$\begin{bmatrix} p \lim a_{ML} \\ p \lim b_{ML} \end{bmatrix} \cong (X' \Omega^{-1} X)^{-1} X' \Omega^{-1} X^* \begin{bmatrix} \alpha \\ \beta \end{bmatrix}$$

Where Ω^{-1} is a diagonal weighting matrix with entries $f(\cdot)/F(\cdot)(1 - F(\cdot))$ and the arguments of the normal density and c.d.f. are $(\alpha + \beta x)/\sigma$, where x is the corresponding element from \underline{x}_1 or \underline{x}_2 .

Now suppose $\underline{x}_1 = \underline{x}_2$; then the above approximating formula reduces to a scalar times the parameter vector. This case is of interest since it corresponds to zero correlation between the residual and the explanatory variable. Thus, for small departures from homoskedasticity, there is only a rescaling effect on the parameter vector when the variance of the residual is uncorrelated with the explanatory variable.

Regarding to two-stage Probit models, Lee, Maddala and Trost (1980) suggest that the correct covariance matrix is underestimated when the heteroskedasticity introduced in the first step is ignored. The demonstration of this point is beyond the scope of this paper, and we recommend the reading of Lee *et al* (1980) to those interested in this point.

²⁴SEE YATCHEW AND GRILICHES (1985). SOME PASSAGES OF THIS ARTICLE ARE REPRODUCED HERE, WITH SOME DETAILS ADDED.

²⁵Details in Yatchew, Griliches, 1984.

REFERENCES

- AMEMIYA, T. The Estimation of a Simultaneous Equation Generalized Probit Model, *Econométrica*, 46, pp. 1193-1205, (1978).
- AMEMIYA, T. A Comparison of the Amemiya GLS and the Lee-Maddala-Trost G2SLS in a Simultaneous-equations Tobit model, *Journal of Econometrics*, 23, pp 295-300, (1983).
- ARIDA, Pérsio; BACHA, Edmar e RESENDE, André Lara. “Credit, interest, and jurisdictional uncertainty: Conjectures on the case of Brazil”, Rio de Janeiro: IEPE/CdG, Texto para Discussão n.2, 2003, Publicado em GIAVAZZI. F.; GOLDFAJN, I; HERRERA, S. (orgs.); Inflation targeting, debt, and the Brazilian experience, 1999 to 2003. Cambridge, MA: MIT Press, may 2005.
- BOUND, John; JAEGER, David; BAKER, Regina. Problem with Instrumental Variables Estimation when the Correlation between the Instruments and the Endogenous Explanatory Variables is Weak. *Journal of American Statistical Association*, vol. 90 (430), pp. 443-50, 1995.
- CAPPELLETTI, Mauro; GARTH, Bryant. Access to justice. Milan: Dott. A. Giuffrè Editore, v.1, 1978.
- DIXIT, Avinash; LONDREGAN, John. Ideology, Tactics, and Efficiency in Redistributive Politics. *Quarterly Journal of Economics*, 113, pp. 497-529, 1998.
- DJANKOV, Simeon; LA PORTA, Rafael; LOPEZ-DE-SILANES, Florencio; SHLEIFER, Andrei. Courts, *Quarterly Journal of Economics*, Vol 118, No. 2: 453-517, May, 2003.
- DRAZEN, Allan. *Political Economy in Macroeconomics*. Princeton: Princeton University Press, 2000.
- FERRÃO, Brisa; RIBEIRO, Ivan. Os Juízes Brasileiros Favorecem A Parte Mais Fraca ? X Latin American and Caribbean Law and Economics Conference, 2006. Access in 26.05.2006, available at <http://www.utdt.edu/~alacde/Papers/Paper16.pdf>.
- GALANTER, Marc; Why the “Haves” come out ahead: speculations on the limits of legal change. *Law and Society Review*, fall (1974). Pp 95-160.
- Gazeta Mercantil, Balanço Anual, 2005.
- GLAESER, E. L.; LAIBSON, D. I.; SCHEINKMAN, J. A.; SOUTTER, C. L.; Measuring Trust. *The Quarterly Journal of Economics*, Vol. 115(3), p. 811-846, 2000

- GLAESER, Edward; SCHEINKMAN, José; SHLEIFER, Andrei. The Injustice of Inequality. *Journal of Monetary Economics*, 50, (2003), pp. 199-222.
- HAHN, JY, HAUSMAN, J. Weak instruments: Diagnosis and cures in empirical econometrics, *American Econometric Review* 93 (2): 118-125, May 2003.
- HARKNESS, Joe. User Stata command of functions ivprobit e divprobit. [between 1987 and 2004]. Available at <http://www.stata.com>, access in 23/05/2005.
- HIGGINS, Matthew; WILLIAMSON, Jeffrey. Explaining inequality the world round: Cohort size, Kuznets curves, and openness. NBER Working Paper 7224, 1999. Available at <http://www.nber.org/papers/w7224>, access in January 15th, 2006.
- INSTITUTO DE PESQUISA ECONÔMICA APLICADA, IPEA-DATA – Macroeconomic Brazilian Data Set. Available at <http://www.ipeadata.gov.br>. Access in March 13th, 2006.
- LAMOUNIER, B.; SOUZA, A; (2002), “As Elites Brasileiras e o Desenvolvimento Nacional: Fatores de Consenso e Dissenso”, São Paulo: Instituto de Estudos Econômicos, Sociais e Políticos de São Paulo, October, 31 pp. (Available at: www.augurium.com.br/termometro.php).
- LAZZARINI, Sergio G.; ARTES, Rinaldo; MADALAZZO, Regina; SIQUIERA, José O. Measuring trust: an experiment in Brazil. *Brazilian Journal of Applied Economics*, Vol. 9, No. 2, 2005.
- LEAL, Victor Nunes. *Coronelismo, Enxada e Voto: o Município e o Regime*. Terceira Edição, Rio de Janeiro: Nova Fronteira, 1997 (Primeira edição em 1948).
- LEE, Lung-Fei; MADDALA, G.S.; TROST, R.P. Asymptotic Covariance Matrices of Two-stage Probit and Two-stage Tobit methods for Simultaneous Equations Models with Selectivity. *Econometrica*, Vol. 48, No. 2, March, 1980.
- LIMA SOBRINHO, Barbosa. Prefácio In: LEAL, Victor Nunes. *Coronelismo, Enxada e Voto: o Município e o Regime*. Terceira Edição, Rio de Janeiro: Nova Fronteira, 1997.
- MADDALA, G. *Limited-Dependent and Qualitative Variables in Econometrics*, Cambridge University Press, 1983 (reprint of 1999).
- MCFADDEN, D. L.; *Conditional Logit Analysis of Qualitative Choice Behavior*. *Frontiers in Econometrics*. Ed. P. Zarembka, 105-142. New York: Academic Press, 1974.

- MELTZER, Allan; RICHARD, Scott. A Rational Theory of the Size of Government, *Journal of Political Economy* 89, 914-27, 1981.
- NELSON, F.; OLSEN, L.; Specification and estimation of a simultaneous equation model with limited dependent variables, *International Economic Review*, vol. 19, pp. 695-705, 1978.
- NEWKEY, Whitney K. Efficient Estimation of Limited Dependent Variable Models with Endogenous Explanatory Variables. *Journal of Econometrics*, [S.l.], Volume 36, pp. 231-250, (1987).
- NORTH, Douglass C.; *Institutions, Institutional Change and Economic Performance*. Cambridge University Press, New York, 1990.
- PERSSON, Torsten; TABELLINI, Guido. *Plitical Economics: Explaining Economic Policy*. Cambridge: MIT Press, 2000.
- PINHEIRO, Armando Castelar O Judiciário e a Economia no Brasil, Armando Castelar Pinheiro (editor), mimeo, abril de 2000.
- _____. *Judiciário e Economia no Brasil*, organizador, Editora Sumaré, São Paulo, 2002a.
- _____. *Judiciário, Reforma e Economia: A Visão dos Magistrados*. , mimeo, dez. de 2002b, pg. 5.
- POSNER, Richard, *Overcoming Law*, Cambridge: Harvard University Press, 1995.
- PNUD - Programa das Nações Unidas para o Desenvolvimento. *Atlas do Desenvolvimento Humano no Brasil*, 2003.
- RIBEIRO, Ivan. *Contratos Relacionais e a Teoria da Firma: Um Teste Empírico com a Sub-contratação de Atividades Jurídicas*. Dissertação de Mestrado defendida na FEA/USP em 24.10.2005, 2005.
- RIBEIRO, Ivan. Um teste empírico e proposta de modelo teórico para os efeitos da segurança jurisdicional das decisões arbitrais sobre o Novo Mercado. In: *Agências Reguladoras, Energia Elétrica e Petróleo*. São Paulo: Instituto Tendências, 2005b.
- RIBEIRO, Ivan. ‘Coronelism’, Hoe and Vote: The Parochial Subversion of Justice Hypothesis, XI Encontro Regional de Economia e o Fórum BNB de Desenvolvimento, Fortaleza, July 19-21th, 2006.
- RIBEIRO, Ivan. CVM e Judiciário: O efeito da incerteza jurídica nos investimentos em ações e a justiça especializada. In: *Agências Reguladoras: CVM e Judiciário, Energia Elétrica*. São Paulo: Instituto Tendências, 2006b.

RIVERS D.; VUONG Q. H.; Limited information estimators and exogeneity tests for simultaneous probit models, *Journal of Econometrics*, vol. 39, no3, pp. 347-366,1988.

YATCHEW, Adonis; GRILICHES, Zvi. Specification Error in Probit Models. *The Review of Economic and Statistics*, Vol. 67, No. 1, pp. 134-139, Feb. 1985.