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An Empirical Approach Toward Understanding the Linkage of Legal and Financial Institutions

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Researchers have made different attempts to investigate the interaction between the quality and efficiency of a country's institutions and a country's economic performance. Within this framework, emphasis has been put on the relationship between the legal institutions and the financial system as essential factors in creating and enhancing overall economic growth. The link between legal institutions and the financial systems, however, is still somewhat controversial. This paper reports on a survey administered to 1,362 participants regarding preferences for investment under different legal and financial institutions. Results suggest that the performance of a country's legal institutions affects the willingness to invest money in that country and that people of different gender, age, political traditions, and professional experience react differently to these institutions.

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I – Introduction

There are several definitions for the meaning of institutions in the academic literature, the most common and accepted one was formulated by North: “Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction” (North, 1990, p.3). Researchers have made different attempts to investigate the interaction between the quality and efficiency of various types of institutions in a country and the country’s economic performance (Acemoglu, Johnson *et al.*, 2004). Institutions, like the legal and the financial system, have been incessantly investigated. Within this framework, emphasis has been put on the relationship between the legal institutions and the financial system as essential factors in creating and enhancing overall economic growth in that country (La_Porta, Lopez-De-Silanes *et al.*, 1998). However, the link between the legal institutions and the financial system is still somewhat controversial. Whereas some studies have shown a positive relationship between improvement of the legal institutions and improvement of the financial system other studies have not demonstrated this association.

The present study has two major goals. The first aims to offer more evidence to the relationship, if any, between a country’s legal institutions and that country’s financial system. Specifically, the data offered here show that the performance of a country’s legal institutions affect the willingness to invest money in that country.

A second aim is to provide empirical evidence that people of different gender, age, political traditions, and professional experience react differently to legal institutions in deciding how to invest.

The remainder of this paper is structured as follows: Section II provides details of the survey; Section III describes and explains the data and method used to design the empirical findings; Section IV reviews the results and analyses them; and Section V gives some concluding remarks.

II – The Survey

A. Subjects

A sample of 1,362 subjects participated in the study. Twenty one additional subjects participated but were excluded because they did not indicate their demographic details. Their average age was 22.30 years; the youngest was 17 years old and the oldest 62 years old. 619 subjects were from the United States of America and 722 from Brazil.

B. Survey Design

The survey instrument collected the following demographic details of the subjects: country the survey was applied; academic program in which the subject was enrolled; year of the school program for the subject; professional experience; legal experience; business experience; age; and gender.

The survey instrument put the subjects in the position of an employee in a company that offers consumers credit through the credit card, housing rental, car loans and general lending markets. Subjects were informed that the company wanted to expand its operations into a new country (country A or country B) with the aim of maximizing profits and were asked to recommend in which of the two countries the company should expand its retail operations. The subjects did not know the identity of countries A and B. The survey instrument provided the subjects with information regarding the bureaucracy, legal institutions, and the financial system of the two countries (Appendix 1).

The survey was randomly distributed in three different versions. Each subject answered only one version:

First version

All the information provided for country A and B were statistical characteristic of bureaucratic, legal, and financial institutions of the United States and Brazil. Country A had the United States' statistical characteristics, and country B had the Brazilian statistical characteristics.

Second version

All the information provided for country A and B were statistical characteristics of bureaucratic, legal, and financial institutions of the United States and Brazil. However, the quantitative measures related to the quality of the legal institutions of county B was improved in 50%. Thus, country A had the United States' statistical characteristic and country B had the Brazilian statistical characteristic with 50% improvement in the legal institutions.

Third version

All the information provided for country A and B were statistical characteristic of bureaucratic, legal, and financial institutions of the United States and of Brazil. However, the quantitative measures related to the quality of the legal institutions in county A were reduced by 50%. Thus, country A had the United States' statistical characteristic with 50% reduction in the legal institutions, and country B had the Brazilian statistical characteristics.

The categories and the sources of the countries' information, provided to subjects, are divided and showed below:

Bureaucratic and Technical information

1. Time involved in launching a commercial or industrial firm with up to 50 employees (World Bank, 2007).
2. Inflation rate. US (The Us Misery Index, 2007). Brazil (Banco Central Do Brasil, 2007)
3. Developed/Developing Country (United Nations, 2007)
4. Legal System Origin: Common Law or Civil Law (Nationmaster.Com, 2005)

Legal Institutions information

1. Time to contract enforcement by the evolution of a sale of goods from the moment the plaintiff files the lawsuit until actual payment (World Bank, 2007).
2. Time spent by litigants and courts to collect a bounced check (Djankov, Porta *et al.*, 2002).

3. Time spent by litigants and courts to evict a tenant for non-payment of rent (Djankov, Porta *et al.*, 2002).
4. World Bank index of lending and bankruptcy laws, from 0 “least friendly” to lenders to 10 “Most friendly to lenders” (World Bank, 2007).

Financial System information

1. Interest rates for Mortgage interest. Brazil (Banco Central Do Brasil, 2007). United States (Hsh Associates Financial Publishers, 2007).
2. Interest rates for Personal Credit. Brazil (Banco Central Do Brasil, 2007). United States (The Federal Reserve Board, 2007).
3. Interest rates for Car loans. Brazil (Banco Central Do Brasil, 2007). United States (The Federal Reserve Board, 2007).
4. Interest rates for Credit Card. Brazil (Banco Do Brasil, 2007). United States (The Federal Reserve Board, 2007).

C. Procedures

Subjects were recruited from five different universities, one in the United States of America and four in Brazil, respectively from:

- The College of Law and Department of Economics of the University of Illinois in Champaign, Illinois;
- The College of Law, Department of Economics, Account, and Business of the Universidade de São Paulo in Ribeirão Preto;
- The College of Law of the Universidade de São Paulo in São Paulo;
- The College of Law of the Fundação de Ensino Octávio Bastos;
- The College of Law of the Fundação Getulio Vargas in São Paulo;
- The College of Law, Department of Account and Business of the UNI-FACEF Centro Universitário de Franca.

Versions 1, 2, and 3 of the survey instrument were presented in a random order in class rooms at the end of a regularly scheduled class. Students in the classes were asked to participate in the survey and all students at the class room had the opportunity to

participate. Responding to the versions of the survey took approximately 12-17 minutes. Each student answered only one version of the survey

Variations of the Survey's Versions. Table 1

Table 1 presents the variations in the legal institutions of each survey version. Version 1 presents original statistical characteristic of legal institutions of the United States (A) and of Brazil (B). Version 2 presents improvements of 50% in the original statistical characteristic of legal institutions of country B. Version 3 presents deterioration of 50% in the original statistical characteristic of legal institutions of country A.

	Version_1 (original data)		Version_2 (Legal Ins. Country B 50% better)		Version_3 (Legal Ins. Country A 50% worse)	
	Country		Country		Country	
Information	A	B	A	B	A	B
Time spent by litigants and courts to evict a tenant for non-payment of rent (in days).	49	120	49	60	74	120
Time to contract enforcement from the moment the plaintiff files the lawsuit until actual payment(in days).	300	616	300	308	450	616
Time spent by litigants and courts to collect a bounced check (in days).	54	180	54	90	81	180
Degree to which collateral and bankruptcy laws facilitate lending (index score).	7	2	7	3	3.5	2

III – Data and Method

A. Data

Table 2 gives an overview of the data provided by the survey.

Descriptive Data. Table 2

Table 2 presents descriptive statistic. It describes the gender, country of origin, professional experience, and school program of the subjects.

		United States		Brazil		Total
Gender		Female	Male	Female	Male	
		258	361	306	416	1341
School Program	Law	105	137	134	144	520
	Undergrad	152	222	112	199	685
	MBA	1	2	60	73	136
Professional Experience	Legal	66	85	39	65	255
	Business	71	129	87	148	435
	None	125	166	160	200	651
Versions	1	94	111	103	144	452
	2	77	124	114	137	452
	3	87	126	89	135	437

B. Method

I will use the following methodologies to analyze my data:

Method 1

Table 3 shows some descriptive statistics and provides an overview of how people differently react to changes in the legal institutions of the different versions of the survey instrument. Table 3 basically tells us how many female and male in the United States and Brazil choose country A or B.

Method 2

Next, I provide empirical evidence that the performance of a country's legal institutions affects people's willingness to invest their money in that country. I use the data set developed from the survey described in the previous sections to estimate two logit type models to analyze the data:²

Equation (1):

$$P(y=1|x) = \alpha_1 + \alpha_2 YofE + \alpha_3 LExp + \alpha_4 BExp + \alpha_5 Age + \alpha_6 Country + \alpha_7 Gender + \alpha_8 D_Q2 + \alpha_9 D_Q3 + u$$

² Wooldridge explains that a linear probability model "is simply an application of the multiple regression model to a binary dependent variable. A binary dependent variable is an example of a limited dependent variable (LDV). An LDV is broadly defined as a dependent variable whose range of values is substantively restricted. A binary variable takes on only two values, zero and one" (Wooldridge, 2006).

Ott and Longnecker extend this explanation as follow: "In many research studies, the response variable may be represented as one of two possible values. Thus, the response variable is a binary random variable taking on the values 0 and 1. For example..., a bank wants to determine which customers are most likely to repay their loan. Thus, they want to record a number of independent variables that describe the customer's are more likely to repay their loan. Thus, they want to record a number of independent variables that describe the customer's reliability and then determine whether these variables are related to the binary variable, $y = 1$ if the customer repays the loan and $y = 0$ if the customer fails to repay the loan" (Ott and Longnecker, 2001).

Equation (2):

$$P(y=1|x) = \alpha_1 + \alpha_2 YofE + \alpha_3 LExp + \alpha_4 BExp + \alpha_5 Age + \alpha_6 Country + \alpha_7 Gender + u$$

Where the dependent variable y is **Invest** (Invest in country 1 = Brazil or investing in country 0 = US) which has only two possible values: to invest money in country B or not invest money in country B. The independent variable **YofE** is years of education and indicates the subject's years of education. The independent variable **LExp** is Legal Experience and indicates the subject's months of legal experience. The independent variable **BExp** is Business Experience and indicates the subject's months of business experience. The independent variable **Age** indicates the subject's years of age. The independent variable **Country** is a binary indicator in which 1 indicates that the Country of the subject was the United States of America and 0 indicates that the Country of the subject was Brazil. The independent variable **Gender** is also a binary indicator in which 1 indicates that the subject was a male and 0 indicates that the subject was a female. The independent variable **D_Q2** is a dummy variable created to control for the differences between version 2 and version 1. The independent variable **D_Q3** is also a dummy variable created to control for the differences between version 3 and version 1. The last term u is simply an independent and identically distributed error.

According to my hypotheses, factors such as years of education, legal experience, business experience, age, political tradition and gender may affect whether people decide to invest their money in country B. Because my outcome variable is binary (either people choose to invest money in country B or do not choose to invest money in country B), I used a logit model to analyze the data.³

³ Another important point is to choose between logit model or probit model. I ran exercises using both models and they are not qualitatively different for my analysis. "Neither the logit model nor the probit model are linear, which makes things difficult. To make the model linear, a transformation is done on the dependent variable. In logit regression, the transformation is the logit function which is the natural log of the odds. In probit models, the function used is the inverse of the standard normal cumulative distribution (a.k.a. a z-score). In reality, this difference isn't important: both transformations are equally good at linearizing the model; which one you use is

I use the first logit model represented by equation (1) to analyze if the treatment (i.e., the different versions of the survey) had a statistically meaningful effect on the likelihood that a subject would choose country A or Country B. Therefore, the results from the equation (1) may offer evidences to the correlation, or lack of, between a country's legal institutions and that country's financial system.⁴ I expected **D_Q2** and **D_Q3** to be significant, showing that subjects were sensible to the quality of the legal institutions.

Method 3

In addition to exploring whether changes in a country's legal institutions are related to the decision to invest in that country, method 3 also provides empirical evidence that people of different gender, age, political traditions, and professional experience differently decide how to invest. Using only survey subjects' responses from Version 1 I ran a logit regression with equation (2). I compared the predicted probabilities of people of different gender, age, political traditions, and professional experience to invest money in country B (B = Brazil = 1) or not invest money in country B.⁵ Results from my comparing predicted probabilities show how these personal characteristics influence investment decision.

a matter of personal preference. Both models need to have diagnostics done afterwards to check that the assumptions of the model have not been violated. Both methods use maximum likelihood, and so require more cases than a similar OLS model. Unlike logit models, you don't get odds ratios with probit models. In general, the logit coefficients are larger than the probit coefficients by a factor of 1.7. However, this rule often does not apply when an independent variable has a high standard error (lots of variability)" (UCLA 2007)

⁴ STATA 10 was the statistical package used for managing, analyzing, and graphing data.

⁵ All the information provided in Version 1 for country A and B are real data for the United States and Brazil collected from different fonts (World Bank, Federal Reserve Board, Central Bank of Brazil, etc.). Where A has the United States' data and B has Brazil's data;

IV – Survey’s Results and Analysis

Results and Analysis of Method 1

The survey instrument asked each subject to decide whether to invest money either in country A or country B. Subjects did not know the identity of countries A and B. The survey instrument, however, used the actual statistical characteristics of bureaucratic, legal, and financial United States’ institutions for country A and Brazil’s actual institutions for country B. Based on the answers of the subject, I created the variable **Invest**. Table 3 presents the results of how people in the United States and Brazil decided to invest in the different versions (1, 2, and 3) of the instrument survey.

Decision to Invest, Gender, Country, and Versions of Survey Cross Tabulation. Table 3

Table presents descriptive statistic. It describes how people of different gender and different country decided to invest.

		Investment (frequency)				Total
		Country A		Country B		
		Female	Male	Female	Male	
Versions of survey Instrument applied in the USA	1	69	63	25	48	205
	2	39	47	38	77	201
	3	47	48	40	78	213
Versions of survey Instrument applied in Brazil	1	52	57	51	87	247
	2	42	29	72	108	251
	3	42	42	47	93	224
Total		291	286	273	491	1.341

		Investment (percent)				Total
		Country A		Country B		
Versions of survey Instrument applied in the USA	1	64		36		100
	2	43		57		100
	3	45		55		100
Versions of survey Instrument applied in Brazil	1	44		56		100
	2	28		72		100
	3	37		63		100

The descriptive statistic stated in Table 3 shows that there was a shift in the amount of subjects that chose to invest in country A or B in the different versions of the survey instrument.⁶ The number of subjects that chose to invest in country B is proportionality bigger in versions 2 and 3 than in version 1. This shift indicates that the treatment was effective to change the decision to invest of the subjects and hence was a valid experimental design. The significance of the treatment in the decision of the subjects is mathematically tested in method 2.

⁶ See, *supra* subsection b. Survey design.

Results and Analysis of Method 2

Table 4 describes the results of Equation (1) using all the survey's data together.

Effects of the Treatment. Table 4

Table 4 presents logistic regression results. All the data used to construct the variables is from the survey described above. The dependable variable is **Investment** that is the probability of investment in Brazil. The independent variables are Years of Education, Legal Experience, Business Experience, Age, Country, Gender, Dummy Questionnaire version 2 and Dummy Questionnaire version 3.

	<i><u>Dependent Variable</u></i>
	<u>Probability of Investment in Brazil</u>
YofEdu	1.11
Legal_Experience	-0.75
Business_Experience	0.42
Age	1.51
Country	5.00**
Gender	5.35**
D_Q2	5.66**
D_Q3	3.95**
Constant	-3.28**
Model Statistics	
Observations	1326
Pseudo R ²	0.0528

* significant at 5%; ** significant at 1%

The coefficient of Dummy Questionnaire version 2 (D_Q2) and Dummy Questionnaire version 3 (D_Q3) that are statistically significant and positives tell us that the treatments are “meaningful interventions” and that people invest more in country 1 (Brazil) after the changes in the legal institutions. The Dummy coefficients also show us that improvements in the Brazilian’s legal institutions had a stronger effect on subjects’ decision to invest than the deterioration of the United States’ legal institutions had. One explanation for the

difference in the effects of the survey's versions 2 and 3 could be that the difference in the quantitative measures related to the quality of the legal institutions of country A and B is smaller in version 2 than in version 3. For example, the information on the time spent by litigants and courts to evict a tenant for non-payment of rent (in days), in the survey's version 1 the difference between country A and B is 71, in version 2 is 11, and in version 3 is 46.

The coefficient of Country variable that is statistically significant tells us that the survey's subjects from different countries (Brazil and United States) "differently" decide how to invest.

The coefficient of Gender variable that is statistically significant tells us that the survey's subjects of different genders "differently" decide how to invest.

Table 4 does not tell us how individual variables interact with the institutional climate represented by the treatment (i.e., it does not show how years of education affects people investment decision).

To analyze the effect of changes in the legal institutions more carefully I use a model that explicitly quantifies the differences between the versions of survey instrument. This model shows how individual variables moderate the decision to invest as we move from one treatment to another (or as we compare one treatment to another).

I will start showing and analyzing the effect of the treatment 2 (Version 2) and treatment 3 (Version 3) on the likelihood that a subject would choose country A or B and I will do it in the following steps.

Step A

I ran the logistic regressions for versions 1, 2 and 3. The results are presented in Table 5.

Logistic Regression Results of Versions 1, 2 and 3. Table 5

Table 5 presents logistic regression results. All the data used to construct the variables is from the survey described above. The dependable variable is Investment that is the probability of investment in Brazil. The independent variables are Years of Education, Legal Experience, Business Experience, Age, Country and Gender.

	<i>Dependent Variable</i>		
	(1) Version 1 Invest	(2) Version 2 Invest	(3) Version 3 Invest
Years of Education	1.27	0.74	-0.14
Legal Experience	-0.36	0.57	-1.38
Business Experience	-0.31	0.6	-0.18
Age	0.04	2.32*	0.01
Country	4.13**	2.92**	1.58
Gender	3.01**	2.92**	3.40**
Constant	-2.04*	-2.19*	-0.04
Model Statistics			
Observations	447	447	432
Pseudo R ²	0.0460	0.0558	0.0270

* significant at 5%; ** significant at 1%

Step B

Using results of the logistic regression of version 1 and version 2 I predicted the probabilities of investment in country B for specific given values of Years of Education, Legal Experience, Business Experience and Age.

Step C

I calculate the difference between version 2 and version 1 $P_{Q2}(I=1|x) - P_{Q1}(I=1|x)$ of the predicted probabilities of investment in country B for some specific given values of Years of Education, Legal Experience, Business Experience and Age.

The following figures visually demonstrate the difference in probabilities in function of a specific variable when all other variable are constant. Results helped to draw the following inferences.

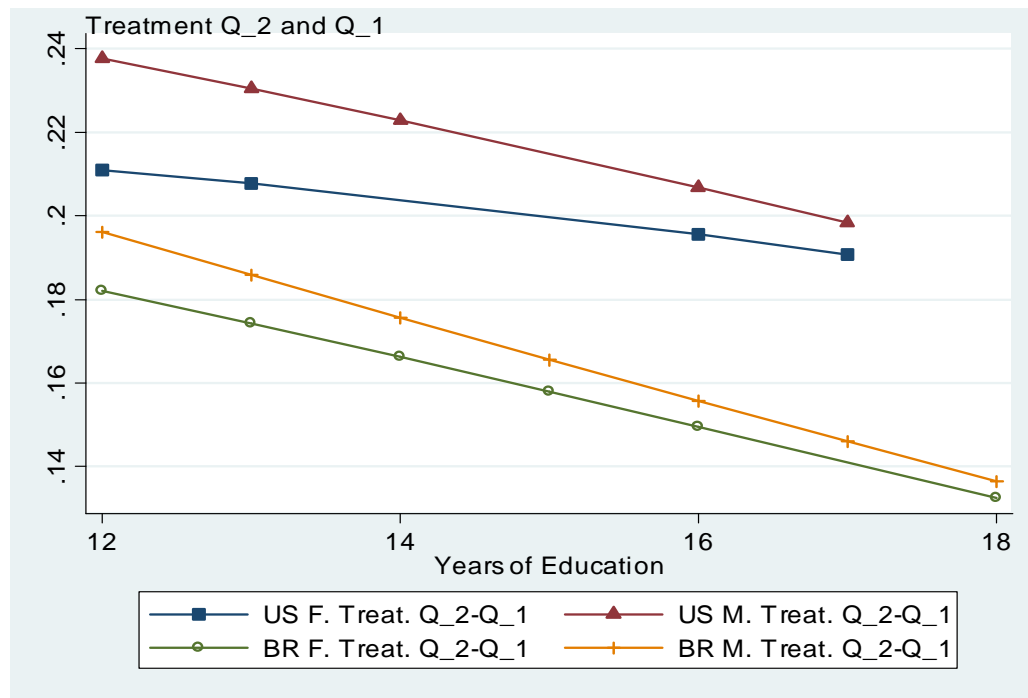


Figure 1

Figure 1 illustrates the difference in probabilities $P_{Q2}(I=1|x) - P_{Q1}(I=1|x)$ for some specific given values of Years of Education when improved the legal institution of country B (Brazil). Figure 1 allows us to make the following inferences:

First, the difference in probability is positive, values are above zero ($P_{Q2} - P_{Q1} > 0$). The positive difference indicates that for any level of education people invest more in country B when we improve the legal institutions of country B.

Second, the difference in probability is decreasing with the years of education, that is, the probability of investing in country B is smaller for people with more years of education, maintaining everything else constant.

Third, when comparing the effect of the treatment (i.e., improvements in the legal institutions of country B in Questionnaire version 2) for subjects of different countries with specific given values of years of education we observe that the difference in probability of investment of United States' subjects is bigger than the difference in probability of investment of Brazilian's subjects. This difference in probabilities of investment leads us to infer that the effect of treatment was more effective to United States' subjects than to Brazilian's subjects for any given values of years of education, maintaining everything else constant.

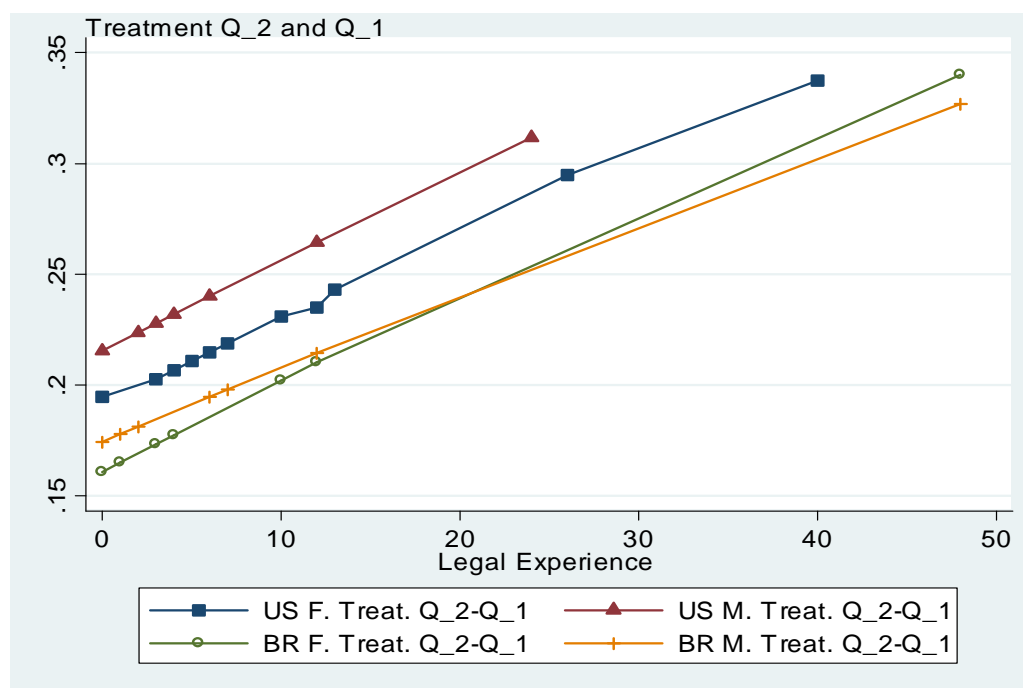


Figure 2

Figure 2 illustrates the difference in probabilities $P_{Q2}(I=1|x) - P_{Q1}(I=1|x)$ for some specific given values of Legal Experience⁷ when improved the legal institution of country B (Brazil). Figure 2 allows us to make the following inferences:

First, the difference in probability is positive, values are above zero ($P_{Q2} - P_{Q1} > 0$). The positive difference indicates that for any level of legal experience people invest more in country B when we improve the legal institutions of country B.

Second, the difference in probability is increasing with the months of legal experience, that is, the probability of investing in country B is greater for people with more time of legal experience, maintaining everything else constant.

Third, when comparing the effect of the treatment (i.e., improvements in the legal institutions of country B in Questionnaire version 2) for subjects of different countries with specific given values of legal experience we observe that the difference in probability of investment of United States' subjects is bigger than the difference in probability of investment of Brazilian's subjects. This difference in probabilities of investment leads us to infer that the effect of treatment was more effective to United States' subjects than to Brazilian's subjects for any given values of legal experience, maintaining everything else constant.

⁷ Legal Experience was measured in months. Subjects' legal experience could be any type of legal internship or work related.

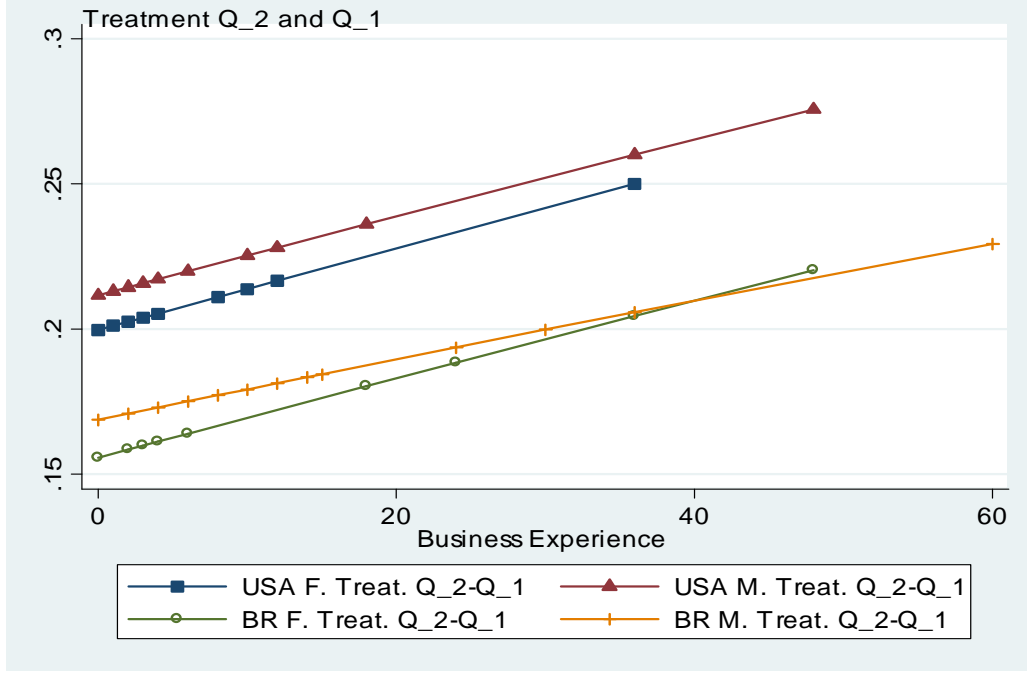


Figure 3

Figure 3 illustrates the difference in probabilities $P_{Q2}(I=1|x) - P_{Q1}(I=1|x)$ for some specific given values of Business Experience⁸ when improved the legal institution of country B (Brazil). Figure 3 allows us to make the following inferences:

First, the difference in probability is positive, values are above zero ($P_{Q2} - P_{Q1} > 0$). The positive difference indicates that for any level of business experience people invest more in country B when we improve the legal institutions of country B.

Second, the difference in probability is increasing with the months of business experience, that is, the probability of investing in country B is greater for people with more time of business experience, maintaining everything else constant.

⁸ Business Experience was measured in months. Subjects' business experience could be any type of work related to business.

Third, when comparing the effect of the treatment (i.e., improvements in the legal institutions of country B in Questionnaire version 2) for subjects of different countries with specific given values of business experience we observe that the difference in probability of investment of United States' subjects is bigger than the difference in probability of investment of Brazil's subjects. This difference in probabilities of investment leads us to infer that the effect of treatment was more effective to United States' subjects than to Brazilian's subjects for any given values of business experience, maintaining everything else constant.

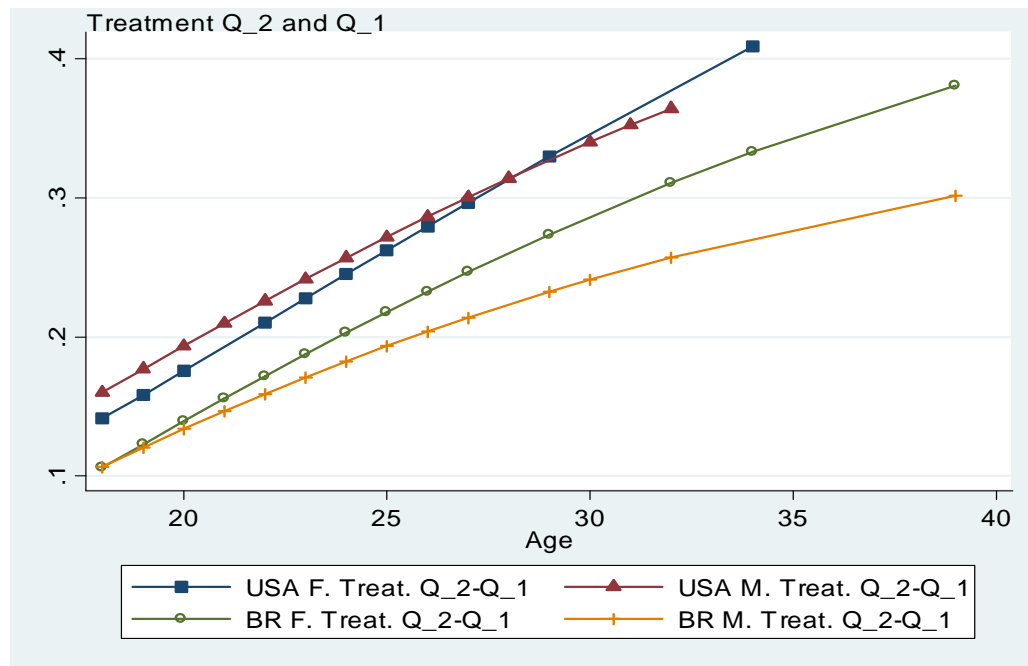


Figure 4

Figure 4 illustrates the difference in probabilities $P_{Q2}(I=1|x) - P_{Q1}(I=1|x)$ for some specific given values of Age when improved the legal institution of country B (Brazil). Figure 4 allows us to make the following inferences:

First, the difference in probability is positive, values are above zero ($P_{Q2} - P_{Q1} > 0$). The positive difference indicates that for any level of age people invest more in country B when we improve the legal institutions of country B.

Second, the difference in probability is increasing with the years of age, that is, the probability of investing in country B is greater for people with more years of age, maintaining everything else constant.

Third, when comparing the effect of the treatment (i.e., improvements in the legal institutions of country B in Questionnaire version 2) for subjects of different countries with specific given values of age we observe that the difference in probability of investment of United States' subjects is bigger than the difference in probability of investment of Brazil's subjects. This difference in probabilities of investment leads us to infer that the effect of treatment was more effective to United States' subjects than to Brazilian's subjects for any given values of age, maintaining everything else constant.

Step D

I repeated all the association done between version 2 and 1, but now using versions 3 and 1. Using results of the logistic regression of version 1 and version 3 I predicted the probabilities of investment in country B for specific given values of Years of Education, Legal Experience, Business Experience and Age. I calculated the difference between version 3 and version 1 $P_{Q3}(I=1|x) - P_{Q1}(I=1|x)$ of the predicted probabilities of investment in country B for some specific given values of Years of Education, Legal Experience, Business Experience and Age. Results helped to draw the following inferences.

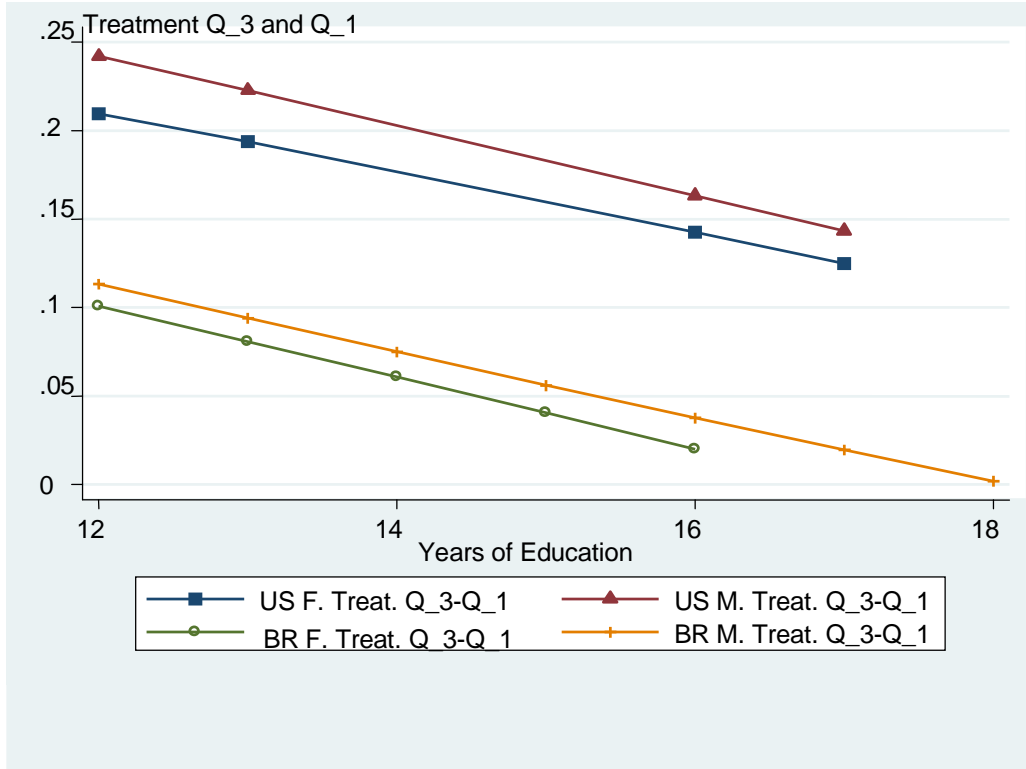


Figure 5

Figure 5 illustrates the difference in probabilities $P_{Q_3}(I=1|x) - P_{Q_1}(I=1|x)$ for some specific given values of Years of Education when deteriorated the legal institution of country A (USA). Figure 5 allows us to make the following inferences:

First, the difference in probability is positive, values are above zero ($P_{Q_3} - P_{Q_1} > 0$). The positive difference indicates that for any level of years of education people invest more in country B when we deteriorate the legal institution of country A.

Second, the difference in probability is decreasing with the years of education, that is, the probability of investing in country B is smaller for people with more years of education, maintaining everything else constant.

Third, when comparing the effect of the treatment (i.e., deterioration of the legal institutions of country A in Questionnaire version 3) for subjects of different countries with specific given values of years of education we observe that the difference in probability of

investment of United States' subjects is bigger than the difference in probability of investment of Brazil's subjects. This difference in probabilities of investment leads us to infer that the effect of treatment was more effective to United States' subjects than to Brazilian's subjects for any given values of years of education, maintaining everything else constant.

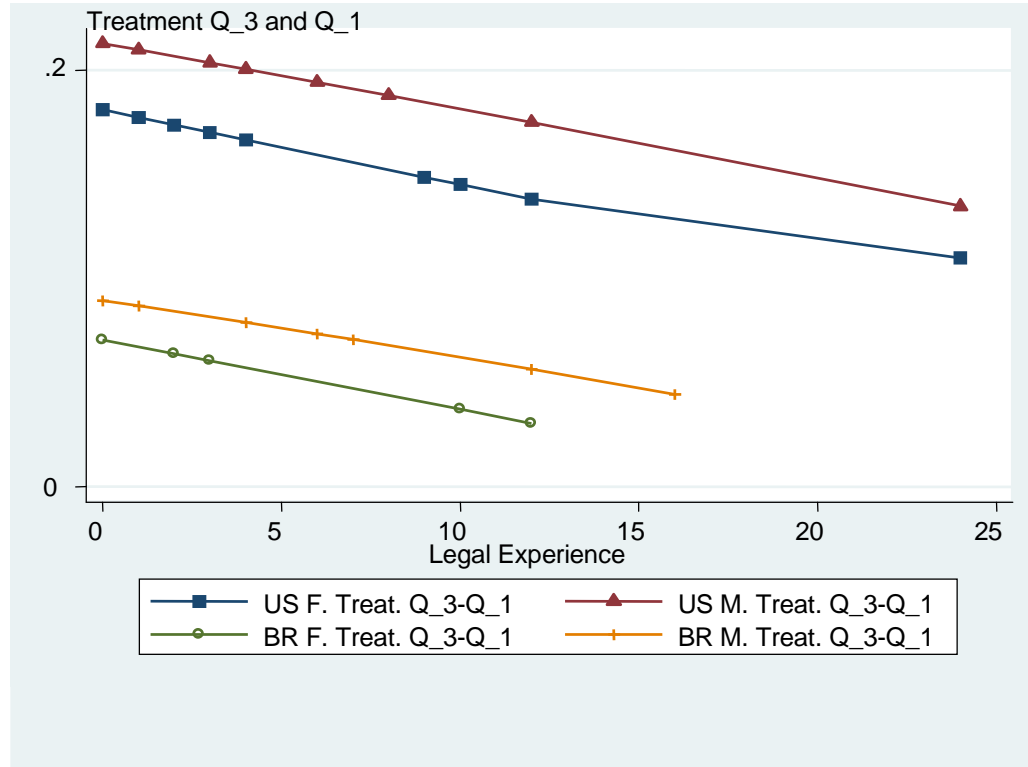


Figure 6

Figure 6 illustrates the difference in probabilities $P_{Q3}(I=1|x) - P_{Q1}(I=1|x)$ for some specific given values of Legal Experience when deteriorate the legal institution of country A (USA). Figure 6 allows us to make the following inferences:

First, the difference in probability is positive, values are above zero ($P_{Q3} - P_{Q1} > 0$). The positive difference indicates that for any level of legal experience people invest more in country B when we deteriorate the legal institutions of country A.

Second, the difference in probability is decreasing with the months legal experience, that is, the probability of investing in country B is smaller for people with more time of legal experience, maintaining everything else constant.

Third, when comparing the effect of the treatment (i.e., deterioration of the legal institutions of country A in Questionnaire version 3) for subjects of different countries with specific given values of legal experience we observe that the difference in probability of investment of United States' subjects is bigger than the difference in probability of investment of Brazil's subjects. This difference in probabilities of investment leads us to infer that the effect of treatment was more effective to United States' subjects than to Brazilian's subjects for any given values of legal experience, maintaining everything else constant.

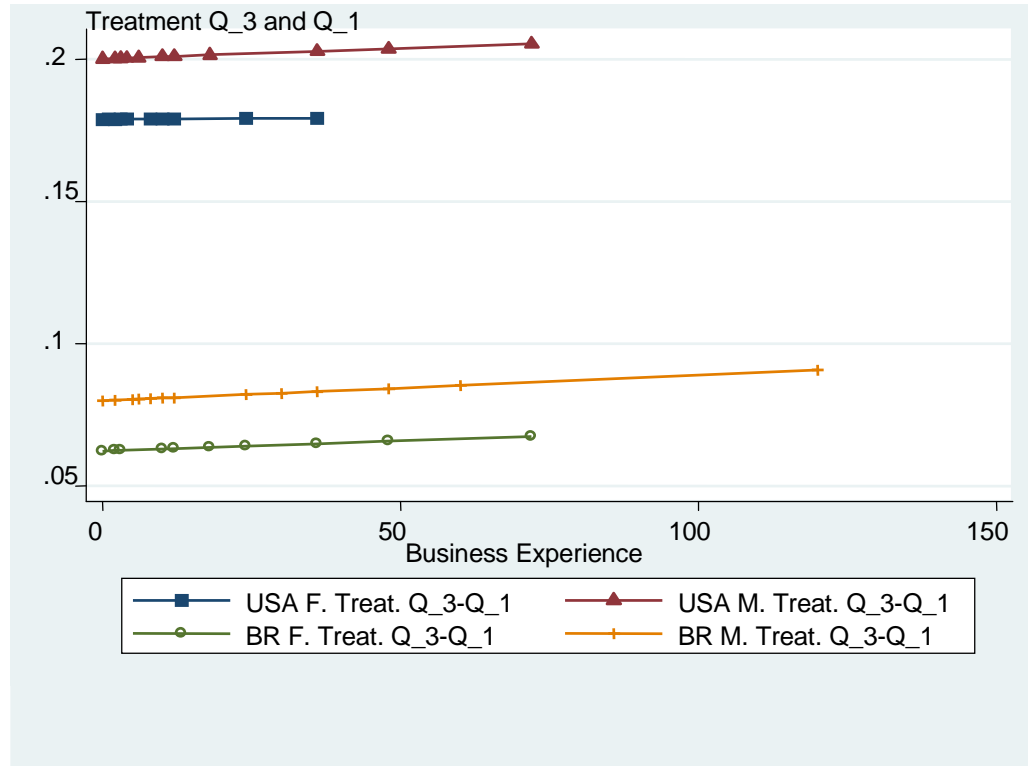


Figure 7

Figure 7 illustrates the difference in probabilities $P_{Q_3}(I=1|x) - P_{Q_1}(I=1|x)$ for some specific given values of Business Experience when deteriorated the legal institution of country A (USA). Figure 7 allows us to make the following inferences:

First, the difference in probability is positive, values are above zero ($P_{Q3} - P_{Q1} > 0$). The positive difference indicates that for any level of business experience people invest more in country B when we deteriorate the legal institutions of country A.

Second, the difference in probability is increasing with the months of business experience, that is, the probability of investing in country B is greater for people with more time of business experience, maintaining everything else constant.

Third, when comparing the effect of the treatment (i.e., deterioration of the legal institutions of country A in Questionnaire version 3) for subjects of different countries with specific given values of business experience we observe that the difference in probability of investment of United States' subjects is bigger than the difference in probability of investment of Brazil's subjects. This difference in probabilities of investment leads us to infer that the effect of treatment was more effective to United States' subjects than to Brazilian's subjects for any given values of business experience, maintaining everything else constant.

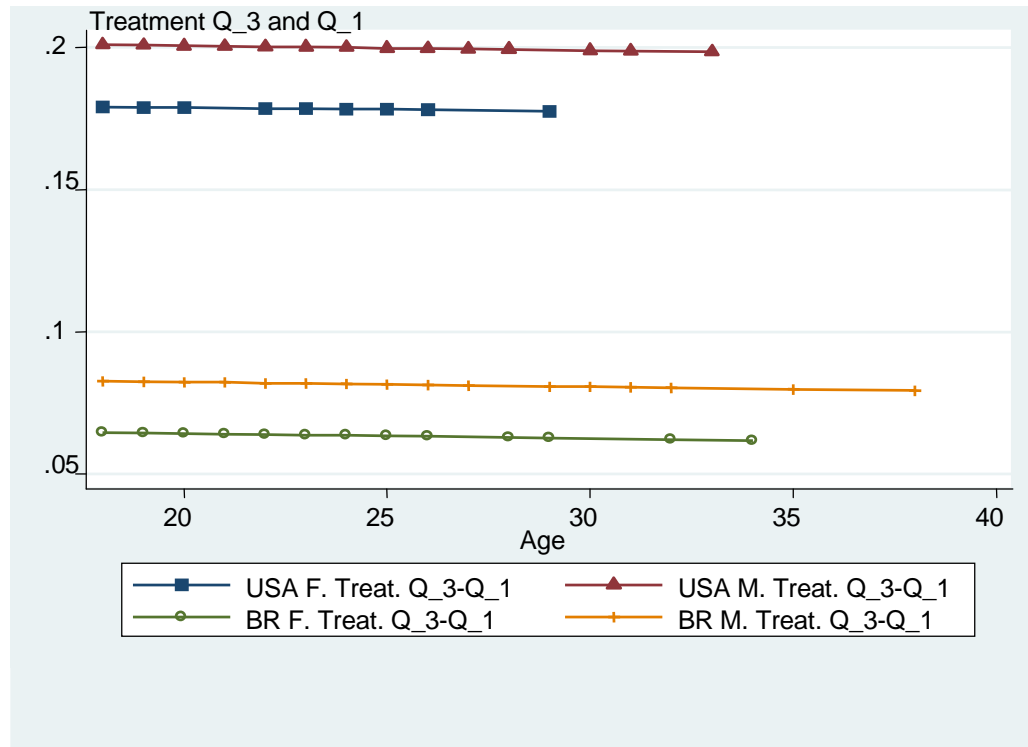


Figure 8

Figure 8 illustrates the difference in probabilities $P_{Q3}(I=1|x) - P_{Q1}(I=1|x)$ for some specific given values of Age when deteriorated the legal institution of country A (USA). Figure 8 allows us to make the following inferences:

First, the difference in probability is positive, values are above zero ($P_{Q3} - P_{Q1} > 0$). The positive difference indicates that for any level of age people invest more in country B when we deteriorate the legal institutions of country A.

Second, the difference in probability is constant with the years of age, that is, the probability of investing in country B is steady for people with more years of age, maintaining everything else constant.

Third, when comparing the effect of the treatment (i.e., deteriorations of the legal institutions of country A in Questionnaire version 3) for subjects of different countries with specific given values of age we observe that the difference in probability of investment of United States' subjects is bigger than the difference in probability of investment of Brazil's subjects. This difference in probabilities of investment leads us to infer that the effect of treatment was more effective to United States' subjects than to Brazilian's subjects for any given values of age, maintaining everything else constant.

Results and Analysis of Method 3

Using results of the logistic regression of version 1⁹ I predicted the probabilities of investment in country B for specific given values of Years of Education, Legal Experience, Business Experience and Age.

⁹ See table 5, column (1).

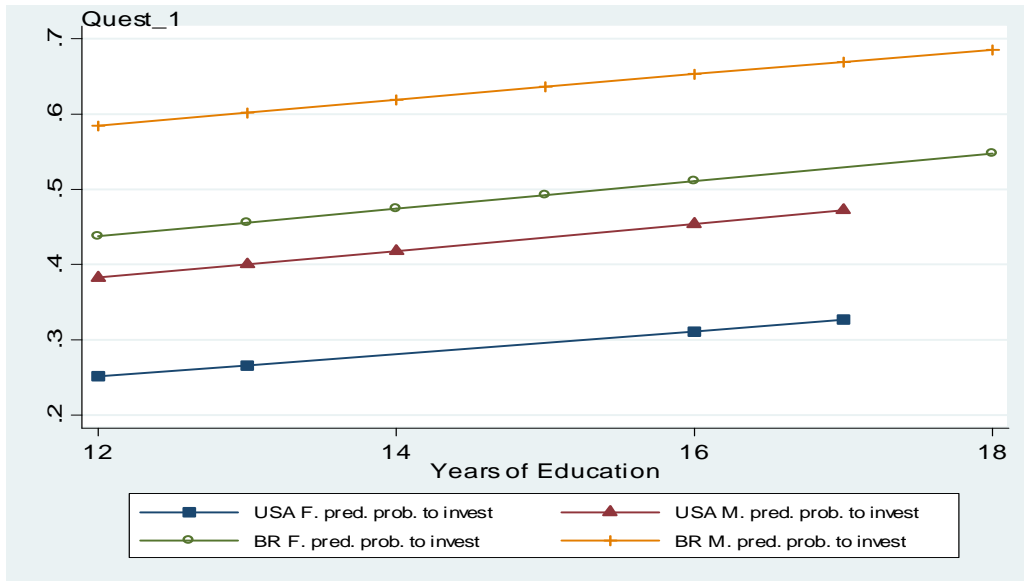


Figure 9

Figure 9 illustrates the probabilities of investment in country B ($P_{Q1}(I=1|x)$) for some specific given values of Years of Education. Figure 9 allows us to make the following inferences:

First, the probability of investment in country B is increasing with the years of education, that is, the probability of investing in country B is greater for people with more years of education, maintaining everything else constant.

Second, when comparing female and male for same country, the probability of investment in country B is greater for males than for females, independently of the years of education, maintaining everything else constant.

Third, when comparing Americans and Brazilians, the probability of investment in country B is greater for Brazilians than for Americans, independently of the years of education, maintaining everything else constant.

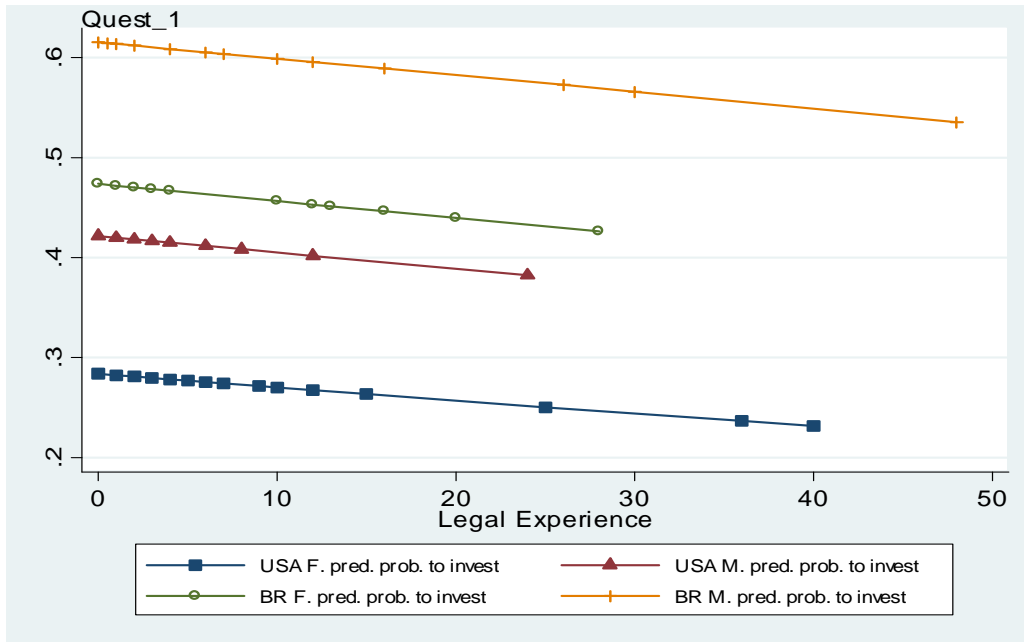


Figure 10

Figure 10 illustrates the probabilities of investment in country B $(P_{Q1}(I=1|x))$ for some specific given values of Legal Experience. Figure 10 allows us to make the following inferences:

First, the probability of investment in country B is decreasing with the months of legal experience, that is, the probability of investing in country B is smaller for people with more months of legal experience, maintaining everything else constant.

Second, when comparing female and male for same country, the probability of investment in country B is greater for males than for females, independently of the time of legal experience, maintaining everything else constant.

Third, when comparing Americans and Brazilians, the probability of investment in country B is greater for Brazilians than for Americans, independently of the time of legal experience, maintaining everything else constant.

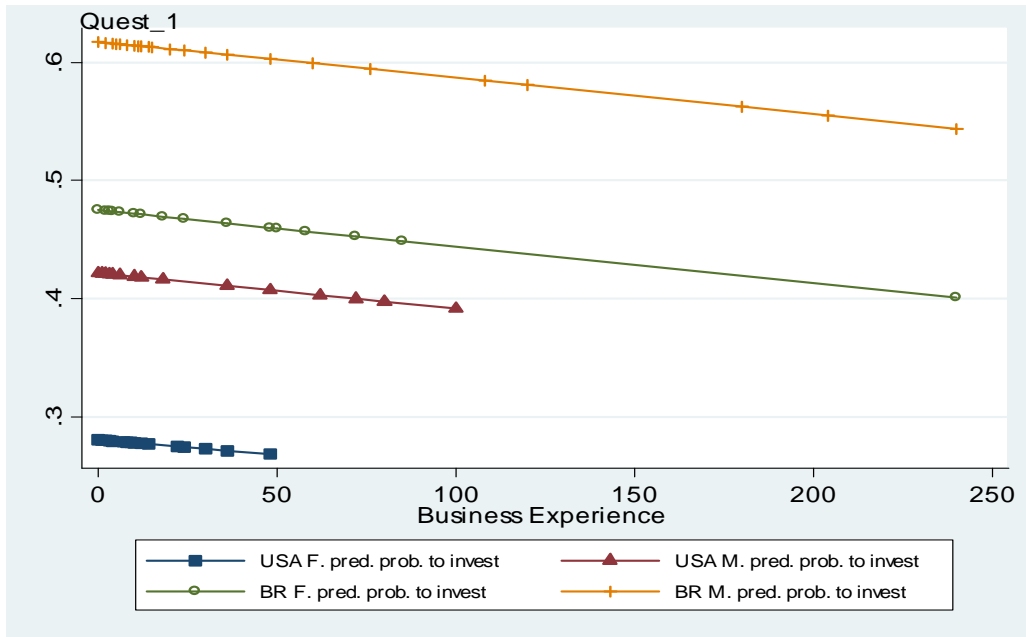


Figure 11

Figure 11 illustrates the probabilities of investment in country B $(P_{Q1}(I=1|x))$ for some specific given values of Business Experience. Figure 11 allows us to make the following inferences:

First, the probability of investment in country B is decreasing with the months of business experience, that is, the probability of investing in country B is smaller for people with more months of business experience, maintaining everything else constant.

Second, when comparing female and male for same country, the probability of investment in country B is greater for males than for females, independently of the time of business experience, maintaining everything else constant.

Third, when comparing Americans and Brazilians, the probability of investment in country B is greater for Brazilians than for Americans, independently of the time of business experience, maintaining everything else constant.

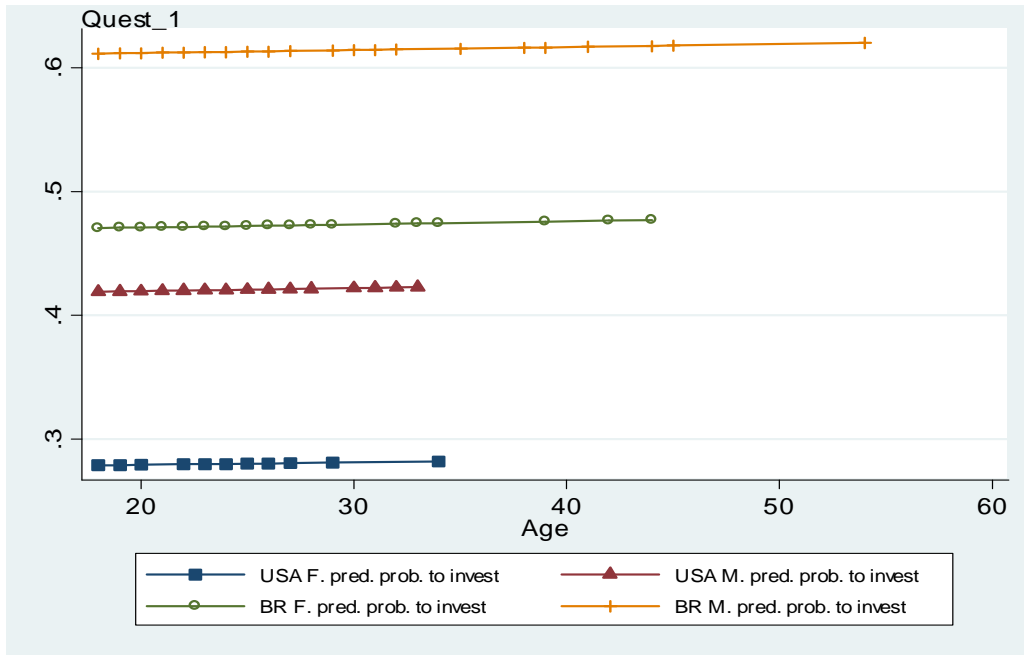


Figure 12

Figure 12 illustrates the probabilities of investment in country B $(P_{Q1}(I=1|x))$ for some specific given values of Age. Figure 12 allows us to make the following inferences:

First, the probability of investment in country B is increasing with the years of age, that is, the probability of investing in country B is greater for people with more years of age, maintaining everything else constant.

Second, when comparing female and male for same country, the probability of investment in country B is greater for males than for females, independently of the years of age, maintaining everything else constant.

Third, when comparing Americans and Brazilians, the probability of investment in country B is greater for Brazilians than for Americans, independently of the years of age, maintaining everything else constant.

The difference in the willingness to invest of survey's subjects from different countries (Brazil and United States) may have been caused by the difference in the cultural environment that subjects live. Subjects from Brazil may feel more comfortable to invest in

a hypothetical country that is more closely related to the real world that they live. The “inefficiency” of the legal institutions of country B (Brazil) may not have been a significant problem to them when comparing to the opportunity of profit provided by country B. On the other hand, survey’s subjects from United States may have been afraid of the insecurity provided by legal institutions in country B. Although, the profit in country B could be bigger than in country A, subjects preferred to invest in a hypothetical country that was more closely related to the real world that they live.

The difference in the willingness to invest of survey’s subjects of different genders may have psychological causes. The psychological literature suggests that women and men may differ in their self perception and this difference may affect economic decisions (Beyer, 1990). A rational survey’s subject only chooses to invest in country A or B if the expected gain exceeds the transactions costs in his or her own perception (Beyer e Bowden, 1997). A subject may overestimates the precision of the information provided to him or her and thereby the expected gains of investing in country A or B. There are studies showing that people may even invest when the true expected net gain is negative and that men are more overconfident than women (Barber e Odean, 2001). The psychological literature gives support to the results of my survey. Although, it was not my intention to find differences in the willingness to invest between men and women, my finds follow the finds of the majority of the psychological literature. My finds show that gender is a meaningful characteristic of the survey’s subject and that men invest more in country B than women, everything else equal.

V – Conclusion

Based on the results of method 1 and 2 it is possible to infer that the performance of a country's legal institutions affects people's willingness to invest their money in that country. These results offer evidences about the correlation between a country's legal institutions and that country's financial system. My results generally corroborate the findings of the Law and Finance field, albeit with survey data. The results indicate that there may be a positive relationship between improvement of the legal institutions and improvement of the financial system.

The results of method 3 suggested that people of different age equally decide how to invest while people of different education, legal experience, business experience, political tradition and gender differently decide how to invest.

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Appendix 1

Demographic Details

University _____

What is your primary degree program?

☐ JD ☐ MBA ☐ JD/MBA ☐ Undergrad Other _____

What year are you in at your school program? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Have you had any legal or business professional working experience? ☐ Yes ☐ No

If yes, how many months? _____ Legal _____ Business

Your age is: _____ (years)

Please indicate your gender: ☐ Female or ☐ Male

Please read the hypothetical case below and then answer scenarios 1.

Hypothetical Case

Imagine you work for a company which offers consumers credit in the form of credit cards, housing rentals, cars loans and general lending markets. Your function in this company is to advise where the company should expand its retail operations. The company wants to expand its operation into a new country with the aim of maximizing profits with balanced risks and benefits. You can only choose from two countries (Country A and B).

Scenario 1: Assuming the following information regarding the bureaucracy, the legal system, and the financial system of countries A and B are accurate, which country would you recommend the company to expand its retail operations? After reading the information below and considering the risks and benefits of each country, please make your choice:

Information	Country A	Country B
Time companies similar to your company have spent to evict a tenant for non-payment of rent:	49 days	120 days
Rates of return companies similar to your company have had on investing in residential home loans (mortgage interest):	6.2%/year	13.7%/year
Legal system origin:	Common Law	Civil Law
Time companies similar to your company have spent to enforce contract from the moment the plaintiff files the lawsuit until actual payment:	300 days	616 days
Rates of return companies similar to your company have had on investing in consumer car loans:	7.9%/year	32.3%/year
Country:	Developed	Developing
Time companies similar to your company have spent to collect a bounced check:	54 days	180 days
Rates of return companies similar to your company have had on investing in consumer personal loans:	12.5%/year	57.2%/year
Inflation rate:	3.24%/year	3.84%/year
World Bank index of lending and bankruptcy laws, from 0 “least friendly” to lenders to 10 “Most friendly to lenders”.	Index score of 7	Index score of 2
Rates of return companies similar to your company have had on investing in consumer credit card loans:	15%/year	93.8%/year
Time companies similar to your company have been involved in launching a commercial or industrial firm with up to 50 employees:	5 days	152 days

Overall you would invest in: ☐ Country A or ☐ Country B